

## ALDER LAKE

## PIERCE COUNTY

LATITUDE 46°48' 9" LONGITUDE 122°18'37" T15N-R4E-9  
NISQUALLY RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 286. SQ MI  
ALTITUDE 1207. FT  
LAKE AREA 3100. ACRES  
LAKE VOLUME 230000. ACRE-FT  
MEAN DEPTH 75. FT  
MAXIMUM DEPTH 290. FT  
SHORELINE LENGTH 28. MI  
SHORELINE CONFIGURATION 3.6  
DEVELOPMENT OF VOLUME 0.26  
BOTTOM SLOPE 2.2 %  
BASIN GEOLOGY SED./META.  
INFLOW PERENNIAL  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 5 %  
NUMBER OF NEARSHORE HOMES 27  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN <1 %  
RESIDENTIAL SUBURBAN <1 %  
AGRICULTURAL 1 %  
FOREST OR UNPRODUCTIVE 97 %  
LAKE SURFACE 2 %  
PUBLIC BOAT ACCESS TO LAKE YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

-----  
SAMPLE SITE  
DATE 1 8/22/74 2 8/22/74  
TIME 1110 1115 1210 1215  
DEPTH (FT) 3. 164. 3. 62.  
TOTAL NITRATE (N) 0.00 0.00 0.00 0.01  
TOTAL NITRITE (N) 0.01 0.03 0.01 0.00  
TOTAL AMMONIA (N) 0.15 0.41 0.10 0.09  
TOTAL ORGANIC NITROGEN (N) 0.13 -- 0.24 0.07  
TOTAL PHOSPHORUS (P) 0.029 0.11 0.020 0.013  
TOTAL ORTHOPHOSPHATE (P) 0.019 0.039 0.011 0.006  
SPECIFIC CONDUCTANCE (MICROMHOS) 40 40 40 40  
WATER TEMPERATURE (DEG C) 17.5 11.3 17.9 12.8  
COLOR (PLATINUM-COBALT UNITS) 0 15 0 0  
SECCHI-DISC VISIRILITY (FT) 2 4  
DISSOLVED OXYGEN 9.2 8.9 9.4 6.8

LAKE SHORELINE COVERED BY EMERSED PLANTS 26- 50 %  
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE 8/22/74  
TIME 1300  
NUMBER OF FECAL COLIFORM SAMPLES 3  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) 5  
FECAL COLIFORM, MEAN (COL./100ML) 3

## REMARKS

-----  
A HYDROPOWER RESERVOIR LOCATED ON THE NISQUALLY RIVER. THE SURFACE WATER OF THE RESERVOIR LIES IN PIERCE, THURSTON, AND LEWIS COUNTY. THE LAKE RECEIVES MELTWATER FROM THE NISQUALLY GLACIER ON MT RAINIER. THE DO WAS NEAR SATURATION THROUGHOUT THE WATER COLUMN AT ONE SAMPLING SITE. AT THE OTHER SAMPLING SITE DO WAS ONLY PARTIALLY DEPLETED NEAR THE LAKE BOTTOM. FLOATING AND SUBMERGED LOGS COVERED THE SHORELINE.  
THE U.S. GEOLOGICAL SURVEY HAS MAINTAINED A WATER-STAGE RECORDER ON THE LAKE SINCE 1944.



Alder Lake, Pierce County. July 3, 1971. Approx. scale 1:63,000.

LATITUDE 47° 6'30" LONGITUDE 122°35'18" T19N-R2E-20  
 PUGET SOUND BASIN

## PHYSICAL DATA

-----  
 DRAINAGE AREA 25.4 SQ MI  
 ALTITUDE 235. FT  
 LAKE AREA 1100. ACRES  
 LAKE VOLUME 60000. ACRE-FT  
 MEAN DEPTH 53. FT  
 MAXIMUM DEPTH 90. FT  
 SHORELINE LENGTH 12. MI  
 SHORELINE CONFIGURATION 2.5  
 DEVELOPMENT OF VOLUME 0.59  
 BOTTOM SLOPE 8.2 %  
 BASIN GEOLOGY SED./META.  
 INFLOW PERENNIAL  
 OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
 RESIDENTIAL DEVELOPMENT 53 %  
 NUMBER OF NEARSHORE HOMES 250  
 LAND USE IN DRAINAGE BASIN  
 RESIDENTIAL URBAN 32 %  
 RESIDENTIAL SUBURBAN 6 %  
 AGRICULTURAL 0 %  
 FOREST OR UNPRODUCTIVE 55 %  
 LAKE SURFACE 7 %  
 PUBLIC BOAT ACCESS TO LAKE YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

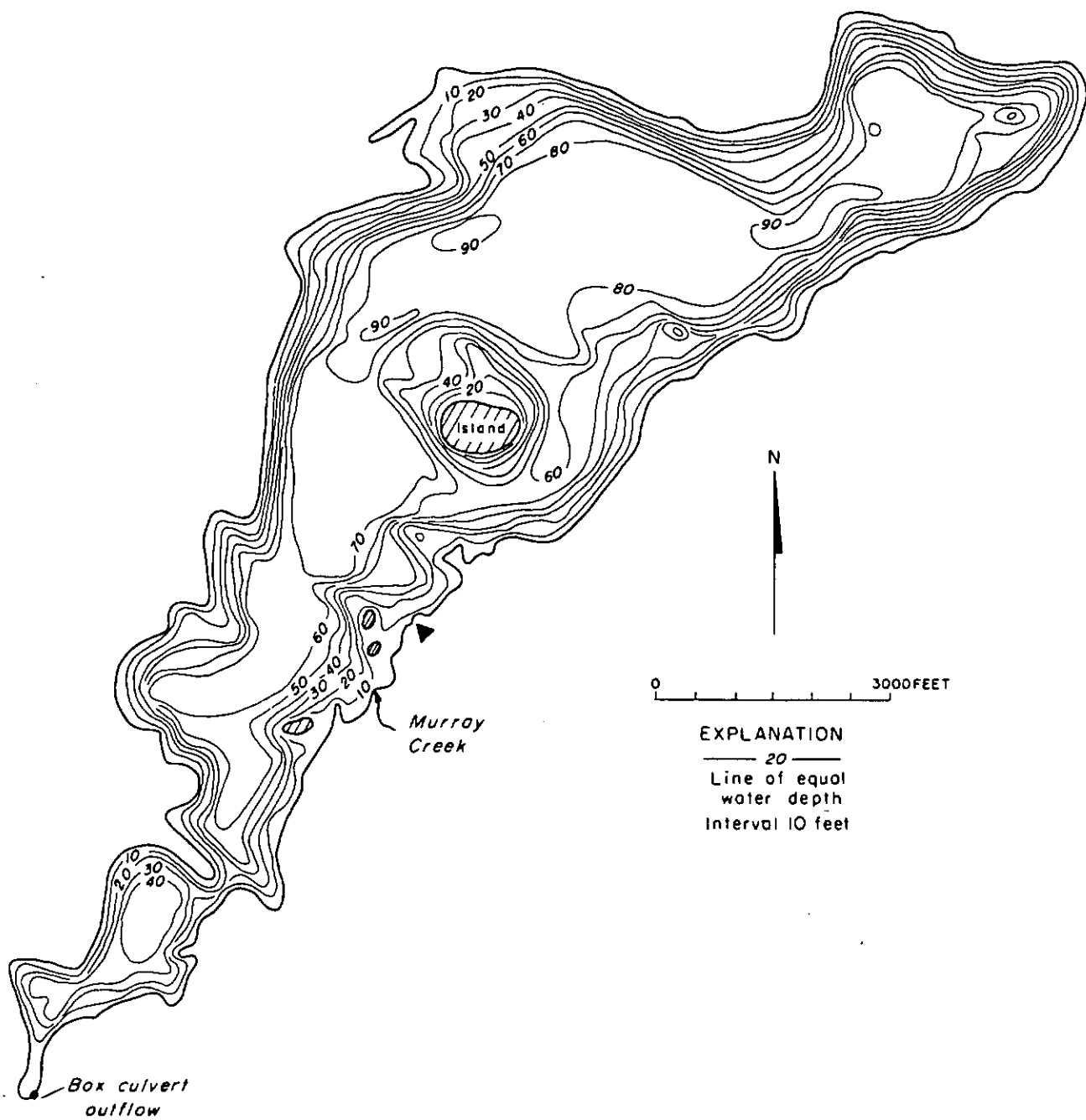
-----  
 SAMPLE SITE 1  
 DATE 8/11/71  
 TIME 1500 1510  
 DEPTH (FT) 3. 85.  
 DISSOLVED NITRATE (N) 0.02 0.02  
 TOTAL NITRITE (N) -- --  
 TOTAL AMMONIA (N) 0.02 1.1  
 TOTAL ORGANIC NITROGEN (N) -- --  
 TOTAL PHOSPHORUS (P) 0.000 0.090  
 DISSOLVED ORTHOPHOSPHATE (P) 0.000 0.090  
 SPECIFIC CONDUCTANCE (MICROMHOS) 95 116  
 WATER TEMPERATURE (DEG C) 24.7 8.2  
 COLOR (PLATINUM-CORALT UNITS) 0 0  
 SECCHI-DISC VISIBILITY (FT) 22  
 DISSOLVED OXYGEN 8.9 0.2

LAKE SHORELINE COVERED BY EMERSED PLANTS 1- 10 %  
 LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE 8/21/74  
 TIME 1330  
 NUMBER OF FECAL COLIFORM SAMPLES 3  
 FECAL COLIFORM, MINIMUM (COL./100ML) <1  
 FECAL COLIFORM, MAXIMUM (COL./100ML) <1  
 FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
 THE LARGEST NATURAL LAKE IN PIERCE COUNTY. THE LAKE LIES PARTLY ON THE  
 FORT LEWIS MILITARY RESERVATION. THE REST OF THE SHORELINE IS URBAN.  
 MURRAY CREEK, THE MAIN SURFACE-WATER INFLOW, DRAINS THROUGH THE MILITARY  
 RESERVATION. NO NATURAL OUTLET EXISTS, BUT IN 1956 A BOX CULVERT WAS  
 INSTALLED WHICH OVERFLOWS TO SEQUALLITCHEW CREEK. THE LAKE RECEIVES HEAVY  
 RECREATIONAL USE. THE GRAVEL LITTORAL BOTTOM SUPPORTED FEW AQUATIC  
 MACROPHYTES. IN 1971 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE SIX  
 TIMES. THE PLANT SURVEY WAS MADE ON SEPTEMBER 13, 1971.



American Lake, Pierce County. From Washington Department of Game, May 24, 1953.





American Lake, Pierce County. December 7, 1971. Approx. scale 1:27,000.

## BAY LAKE

## PIERCE COUNTY

LATITUDE 47°14'24" LONGITUDE 122°45'22" T20N-R1W-12  
 PUGET SOUND BASIN

## PHYSICAL DATA

-----  
 DRAINAGE AREA 1.00 SQ MI  
 ALTITUDE 27. FT  
 LAKE AREA 140. ACRES  
 LAKE VOLUME 1100. ACRE-FT  
 MEAN DEPTH 8. FT  
 MAXIMUM DEPTH 11. FT  
 SHORELINE LENGTH 1.9 MI  
 SHORELINE CONFIGURATION 1.1  
 DEVELOPMENT OF VOLUME 0.73  
 BOTTOM SLOPE 0.39 %  
 BASIN GEOLOGY SED./META.  
 INFLOW NONE VISIBLE  
 OUTFLOW CHANNEL ABSENT

## CULTURAL DATA

-----  
 RESIDENTIAL DEVELOPMENT 25 %  
 NUMBER OF NEARSHORE HOMES 9  
 LAND USE IN DRAINAGE BASIN  
 RESIDENTIAL URBAN 0 %  
 RESIDENTIAL SUBURBAN <1 %  
 AGRICULTURAL 5 %  
 FOREST OR UNPRODUCTIVE 73 %  
 LAKE SURFACE 22 %  
 PUBLIC BOAT ACCESS TO LAKE YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

## SAMPLE SITE

-----  
 DATE 8/10/73  
 TIME 1440 1445  
 DEPTH (FT) 3. 7.  
 TOTAL NITRATE (N) 0.01 0.04  
 TOTAL NITRITE (N) 0.01 0.01  
 TOTAL AMMONIA (N) 1.4 1.0  
 TOTAL ORGANIC NITROGEN (N) 0.80 0.90  
 TOTAL PHOSPHORUS (P) 0.26 0.21  
 TOTAL ORTHOPHOSPHATE (P) 0.080 0.076  
 SPECIFIC CONDUCTANCE (MICROMHOS) 104 104  
 WATER TEMPERATURE (DEG C) 22.8 21.2  
 COLOR (PLATINUM-COBALT UNITS) 40 45  
 SECCHI-DISC VISIBILITY (FT) 5  
 DISSOLVED OXYGEN 4.4 1.3

LAKE SHORELINE COVERED BY EMERSED PLANTS  
 LAKE SURFACE COVERED BY EMERSED PLANTS

1- 10 %  
 NONE OR <1 %

## DATE

8/10/73

## TIME

1450

## NUMBER OF FECAL COLIFORM SAMPLES

3

## FECAL COLIFORM, MINIMUM (COL./100ML)

1

## FECAL COLIFORM, MAXIMUM (COL./100ML)

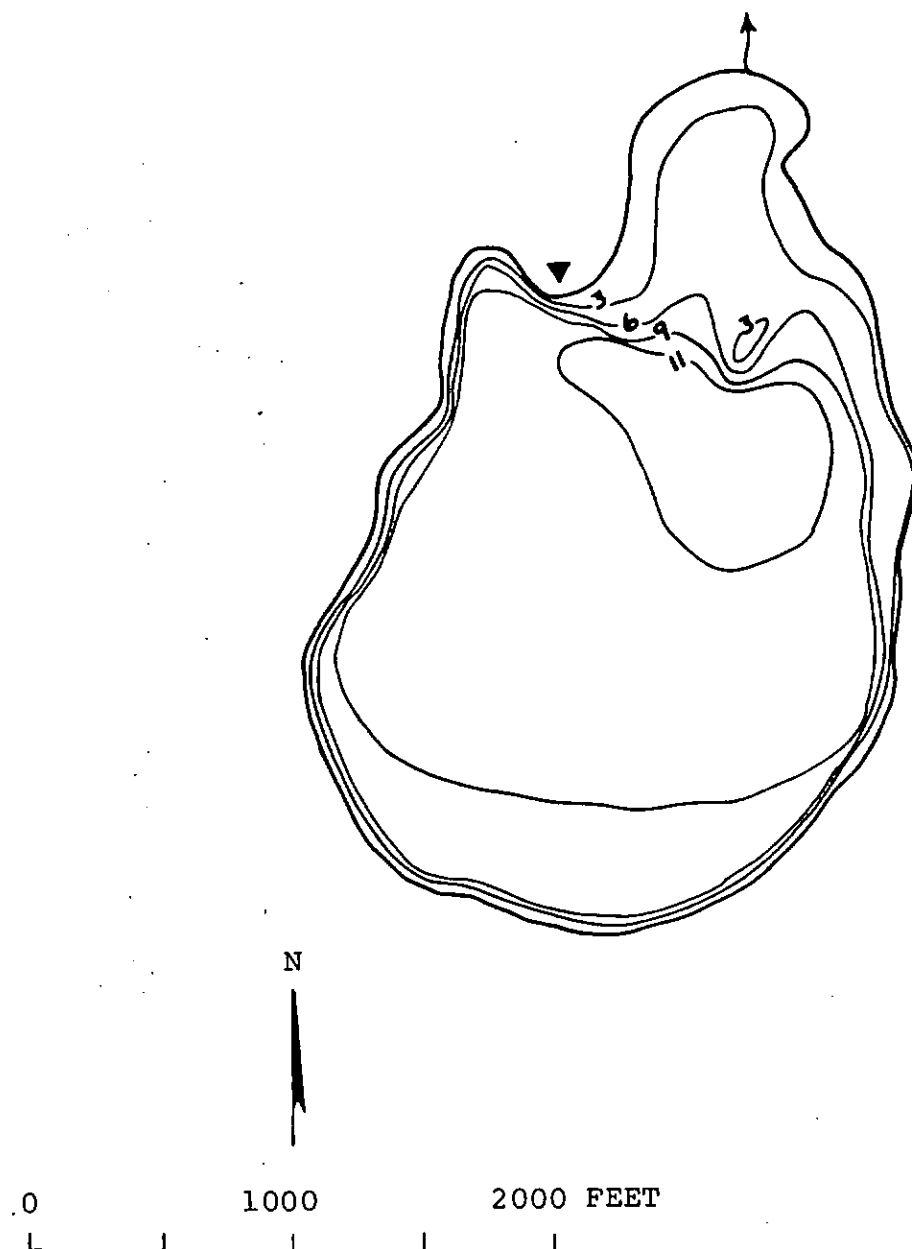
2

## FECAL COLIFORM, MEAN (COL./100ML)

2

## REMARKS

-----  
 TREES AND SHRUBS OVERHANG THE EDGE OF THE WATER. AN ALGAL BLOOM WAS OBSERVED.



EXPLANATION

— 6 —

Line of equal  
water depth  
Interval 3 feet

Bay Lake, Pierce County. From Washington  
Department of Game, September 16, 1948.



Bay Lake, Pierce County. May 24, 1970. Approx. scale 1:12,000.

LATITUDE 47°11'23" LONGITUDE 122°10'57" T20N-R5E-28  
 PUYALLUP RIVER BASIN

# PHYSICAL DATA

-----  
 DRAINAGE AREA 0.22 SQ MI  
 ALTITUDE 605. FT  
 LAKE AREA 17. ACRES  
 LAKE VOLUME 160. ACRE-FT  
 MEAN DEPTH 10. FT  
 MAXIMUM DEPTH 19. FT  
 SHORELINE LENGTH 0.74 MI  
 SHORELINE CONFIGURATION 1.3  
 DEVELOPMENT OF VOLUME 0.52  
 BOTTOM SLOPE 2.0 %  
 BASIN GEOLOGY SED./META.  
 INFLOW NONE VISIBLE  
 OUTFLOW CHANNEL PRESENT

# CULTURAL DATA

-----  
 RESIDENTIAL DEVELOPMENT 84 %  
 NUMBER OF NEARSHORE HOMES 16  
 LAND USE IN DRAINAGE BASIN  
 RESIDENTIAL URBAN 0 %  
 RESIDENTIAL SUBURBAN 8 %  
 AGRICULTURAL 4 %  
 FOREST OR UNPRODUCTIVE 76 %  
 LAKE SURFACE 12 %  
 PUBLIC BOAT ACCESS TO LAKE YES

# WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

-----  
 SAMPLE SITE 1  
 DATE 8/ 9/73  
 TIME 1515 1520  
 DEPTH (FT) 3. 14.  
 TOTAL NITRATE (N) 0.00 0.02  
 TOTAL NITRITE (N) 0.00 0.00  
 TOTAL AMMONIA (N) 0.06 0.24  
 TOTAL ORGANIC NITROGEN (N) 0.38 0.26  
 TOTAL PHOSPHORUS (P) 0.015 0.044  
 TOTAL ORTHOPHOSPHATE (P) 0.005 0.014  
 SPECIFIC CONDUCTANCE (MICROMHOS) 49 59  
 WATER TEMPERATURE (DEG C) 22.8 18.9  
 COLOR (PLATINUM-COBALT UNITS) 15 65  
 SECCHI-DISC VISIBILITY (FT) 11  
 DISSOLVED OXYGEN 8.0 0.5

LAKE SHORELINE COVERED BY EMERSED PLANTS 26- 50 %  
 LAKE SURFACE COVERED BY EMERSED PLANTS 11- 25 %

DATE 8/ 9/73  
 TIME 1520  
 NUMBER OF FECAL COLIFORM SAMPLES 2  
 FECAL COLIFORM, MINIMUM (COL./100ML) 1  
 FECAL COLIFORM, MAXIMUM (COL./100ML) 11  
 FECAL COLIFORM, MEAN (COL./100ML) 6

# REMARKS

-----  
 EMERSED AQUATIC PLANTS COVERED THE LAKE IN SCATTERED DENSE PATCHES AND  
 SUBMERSED AQUATIC PLANTS (ELODEA) COVERED MUCH OF THE LAKE BOTTOM.





Bonney Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, June 18, 1973.  
Aerial photo, April 3, 1973.

## BOWMAN LAKE

## PIERCE COUNTY

LATITUDE 47°15'15" LONGITUDE 122°10'16" T20N-R5E-4  
PUYALLUP RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 0.32 SQ MI  
ALTITUDE 470. FT  
LAKE AREA 14. ACRES  
LAKE VOLUME 55. ACRE-FT  
MEAN DEPTH 4. FT  
MAXIMUM DEPTH 9. FT  
SHORELINE LENGTH 1.0 MI  
SHORELINE CONFIGURATION 1.9  
DEVELOPMENT OF VOLUME 0.45  
BOTTOM SLOPE 1.0 %  
BASIN GEOLOGY SED./META.  
INFLOW INTERMITTENT  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 0 %  
NUMBER OF NEARSHORE HOMES 0  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 0 %  
AGRICULTURAL 0 %  
FOREST OR UNPRODUCTIVE 91 %  
LAKE SURFACE 9 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

-----  
SAMPLE SITE 1  
DATE 8/ 9/73  
TIME 1600 1610  
DEPTH (FT) 3. 6.  
TOTAL NITRATE (N) 0.01 --  
TOTAL NITRITE (N) 0.00 --  
TOTAL AMMONIA (N) 0.04 --  
TOTAL ORGANIC NITROGEN (N) 0.12 --  
TOTAL PHOSPHORUS (P) 0.008 --  
TOTAL ORTHOPHOSPHATE (P) 0.004 --  
SPECIFIC CONDUCTANCE (MICROMHOS) 51 --  
WATER TEMPERATURE (DEG C) 20.8 20.0  
COLOR (PLATINUM-COBALT UNITS) 0 --  
SECCHI-DISC VISIBILITY (FT) --  
DISSOLVED OXYGEN 9.2 8.6

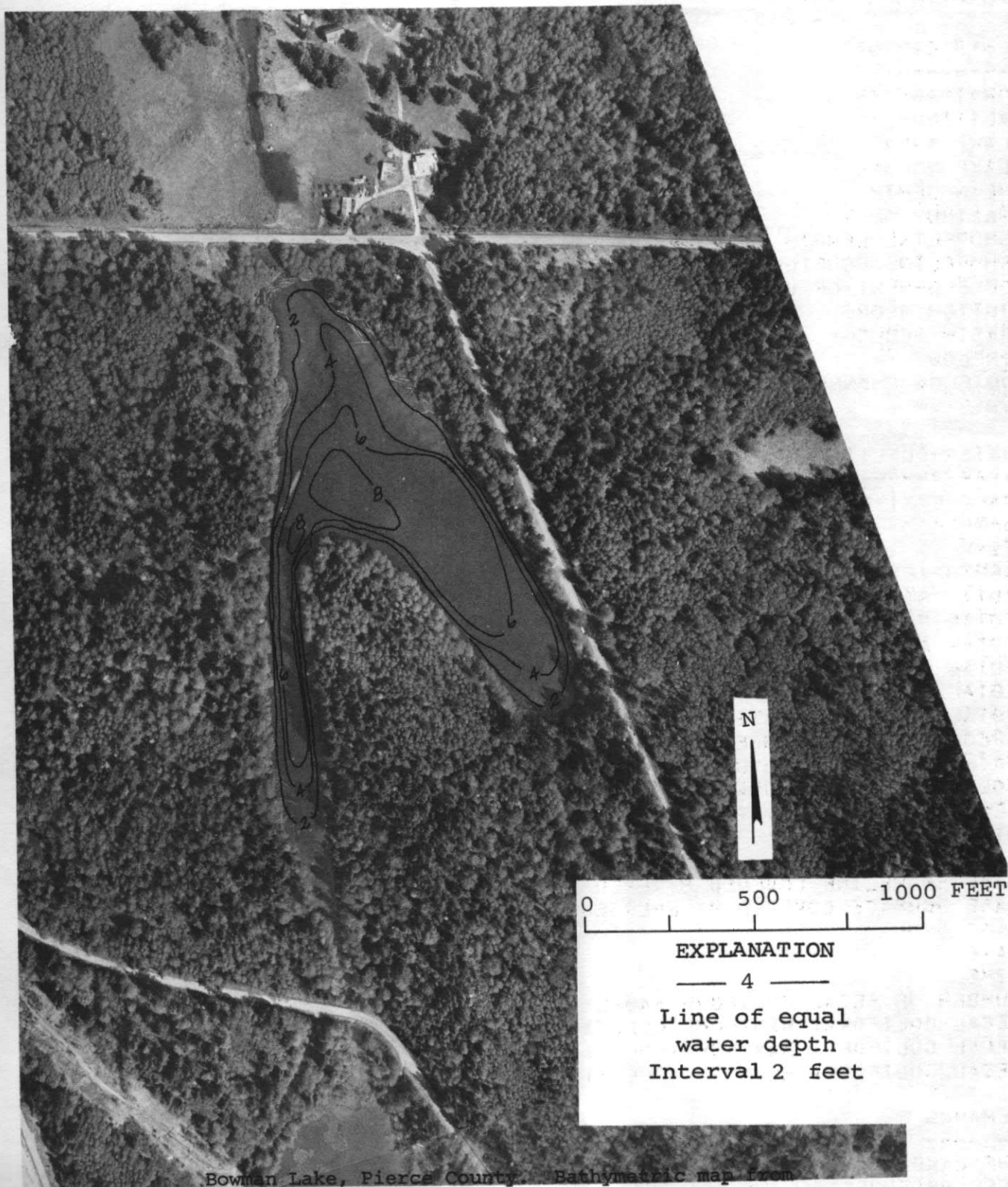
LAKE SHORELINE COVERED BY EMERSED PLANTS 1- 10 %  
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE 8/ 9/73  
TIME 1610  
NUMBER OF FECAL COLIFORM SAMPLES 3  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) <1  
FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
THE LAKE IS FED BY HILLE LAKE. TREES AND SHRUBS OVERHANG THE WATER'S  
EDGE. SUBMERSED PLANTS COVERED MOST OF LAKE BOTTOM IN SCATTERED PATCHES.  
THE LITTORAL BOTTOM IS MUCK. LOGS AND WOOD DEBRIS ARE FOUND LOCALLY ALONG  
THE SHORELINE. A SECCHI-DISC READING WAS NOT RECORDED.





Bowman Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, June 21, 1973.  
Aerial photo, April 29, 1973.

## CARNEY LAKE

## PIERCE COUNTY

LATITUDE 47°24' 2" LONGITUDE 122°45'39" T22N-R1W-14  
 PUGET SOUND BASIN

## PHYSICAL DATA

## CULTURAL DATA

DRAINAGE AREA	0.46 SQ MI	RESIDENTIAL DEVELOPMENT	90 %
ALTITUDE	350. FT	NUMBER OF NEARSHORE HOMES	18
LAKE AREA	41. ACRES	LAND USE IN DRAINAGE BASIN	
LAKE VOLUME	500. ACRE-FT	RESIDENTIAL URBAN	0 %
MEAN DEPTH	12. FT	RESIDENTIAL SUBURBAN	5 %
MAXIMUM DEPTH	25. FT	AGRICULTURAL	0 %
SHORELINE LENGTH	1.1 MI	FOREST OR UNPRODUCTIVE	81 %
SHORELINE CONFIGURATION	1.3	LAKE SURFACE	14 %
DEVELOPMENT OF VOLUME	0.49		
BOTTOM SLOPE	1.7 %		
BASIN GEOLOGY	SED./META.		
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	ABSENT	PUBLIC BOAT ACCESS TO LAKE	YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

SAMPLE SITE	1
DATE	8/10/73
TIME	1650 1655
DEPTH (FT)	3. 13.
TOTAL NITRATE (N)	0.02 0.14
TOTAL NITRITE (N)	0.00 0.00
TOTAL AMMONIA (N)	0.02 0.03
TOTAL ORGANIC NITROGEN (N)	0.08 0.09
TOTAL PHOSPHORUS (P)	0.011 0.007
TOTAL ORTHOPHOSPHATE (P)	0.003 0.003
SPECIFIC CONDUCTANCE (MICROMHOS)	15 15
WATER TEMPERATURE (DEG C)	22.9 22.5
COLOR (PLATINUM-COBALT UNITS)	0 0
SECCHI-DISC VISIBILITY (FT)	15
DISSOLVED OXYGEN	8.5 8.6

LAKE SHORELINE COVERED BY EMERSED PLANTS	LITTLE OR NONE
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	8/10/73
TIME	1730
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

## REMARKS

THE LAKE LIES IN KITSAP AND PIERCE COUNTIES. VERY FEW AQUATIC MACROPHYTES WERE OBSERVED.



0 500 1000 FEET



EXPLANATION

— 10 —

Line of equal  
water depth  
Interval 5 feet

Carney Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, June 22, 1973.  
Aerial photo, April 3, 1973.

## CEDAR LAKE

## PIERCE COUNTY

LATITUDE 47° 4' 17" LONGITUDE 121° 50' 22" T18N-R8E-6  
 PUYALLUP RIVER BASIN

## PHYSICAL DATA

-----  
 DRAINAGE AREA 0.36 SQ MI  
 ALTITUDE 4200. FT  
 LAKE AREA 28. ACRES  
 LAKE VOLUME 710. ACRE-FT  
 MEAN DEPTH 26. FT  
 MAXIMUM DEPTH 76. FT  
 SHORELINE LENGTH 1.0 MI  
 SHORELINE CONFIGURATION 1.4  
 DEVELOPMENT OF VOLUME 0.34  
 BOTTOM SLOPE 6.1 %  
 BASIN GEOLOGY IGNEOUS  
 INFLOW INTERMITTENT  
 OUTFLOW CHANNEL ABSENT

## CULTURAL DATA

-----  
 RESIDENTIAL DEVELOPMENT 0 %  
 NUMBER OF NEARSHORE HOMES 0  
 LAND USE IN DRAINAGE BASIN  
 RESIDENTIAL URBAN 0 %  
 RESIDENTIAL SUBURBAN 0 %  
 AGRICULTURAL 0 %  
 FOREST OR UNPRODUCTIVE 88 %  
 LAKE SURFACE 12 %  
 PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

## SAMPLE SITE

-----  
 DATE 7/17/73  
 TIME 950 1000  
 DEPTH (FT) 3. 56.  
 TOTAL NITRATE (N) 0.02 0.02  
 TOTAL NITRITE (N) 0.00 0.00  
 TOTAL AMMONIA (N) 0.03 0.03  
 TOTAL ORGANIC NITROGEN (N) 0.04 0.04  
 TOTAL PHOSPHORUS (P) 0.002 0.002  
 TOTAL ORTHOPHOSPHATE (P) 0.002 0.002  
 SPECIFIC CONDUCTANCE (MICROMHOS) 24 24  
 WATER TEMPERATURE (DEG C) 18.5 4.3  
 COLOR (PLATINUM-COBALT UNITS) 5 5  
 SECCHI-DISC VISIRILITY (FT) 28  
 DISSOLVED OXYGEN 8.4 6.8

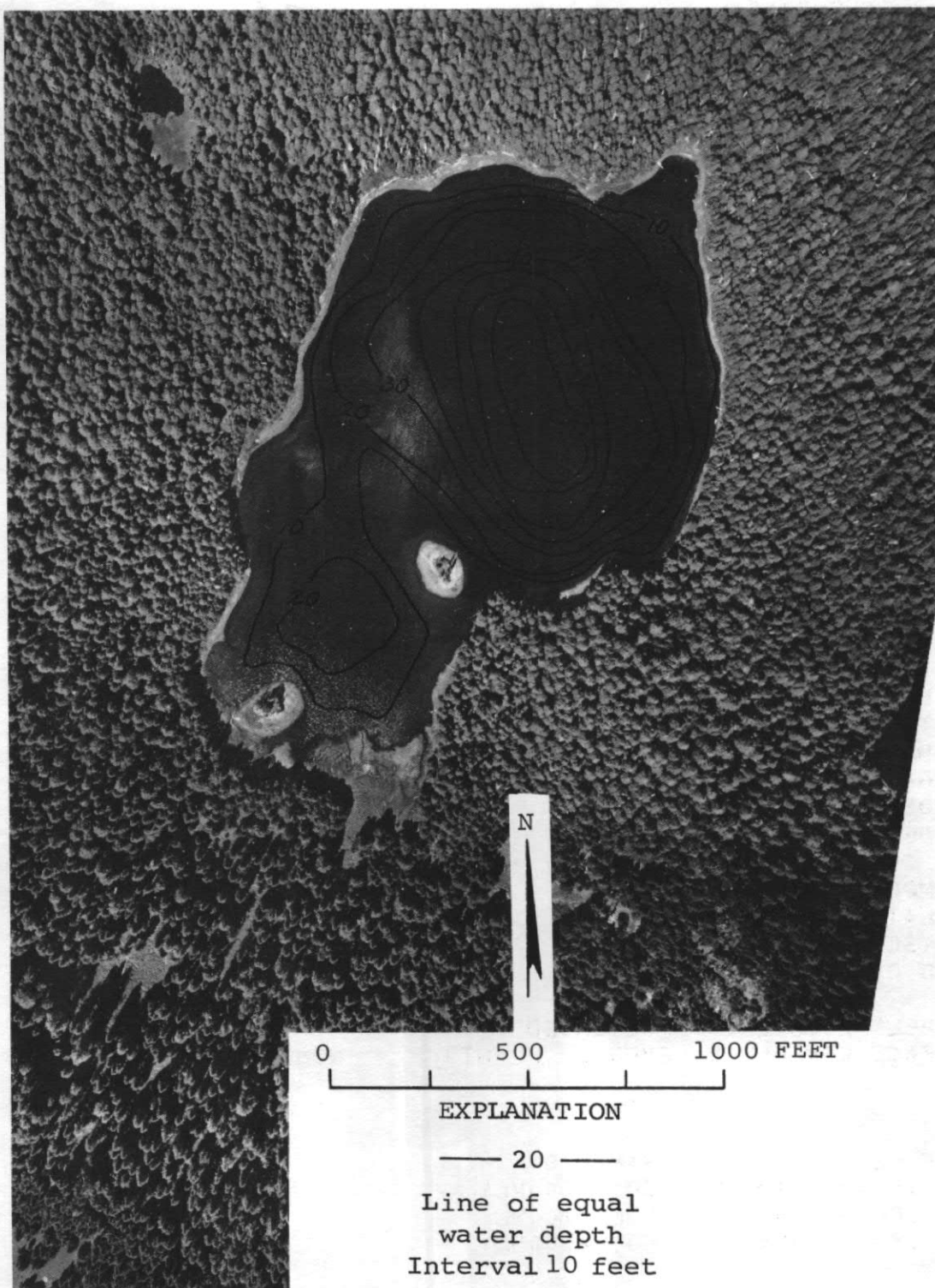
LAKE SHORELINE COVERED BY EMERSED PLANTS 1- 10 %  
 LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE 7/17/73  
 TIME 1030  
 NUMBER OF FECAL COLIFORM SAMPLES 2  
 FECAL COLIFORM, MINIMUM (COL./100ML) <1  
 FECAL COLIFORM, MAXIMUM (COL./100ML) <1  
 FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
 A FEW THINLY SCATTERED EMERSED AND SUBMERSED PLANTS WERE OBSERVED.





Cedar Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, September 2, 1973.  
Aerial photo, July 14, 1973.

## CLEAR LAKE

## PIERCE COUNTY

LATITUDE 46°55'33" LONGITUDE 122°16'34" T17N-R4E-27  
NISQUALLY RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 0.41 SQ MI  
ALTITUDE 778. FT  
LAKE AREA 160. ACRES  
LAKE VOLUME 6100. ACRE-FT  
MEAN DEPTH 38. FT  
MAXIMUM DEPTH 85. FT  
SHORELINE LENGTH 2.1 MI  
SHORELINE CONFIGURATION 1.2  
DEVELOPMENT OF VOLUME 0.45  
BOTTOM SLOPE 2.8 %  
BASIN GEOLOGY SED./META.  
INFLOW NONE VISIBLE  
OUTFLOW CHANNEL ABSENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 84 %  
NUMBER OF NEARSHORE HOMES 122  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 17 %  
AGRICULTURAL 0 %  
FOREST OR UNPRODUCTIVE 34 %  
LAKE SURFACE 49 %  
PUBLIC BOAT ACCESS TO LAKE YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

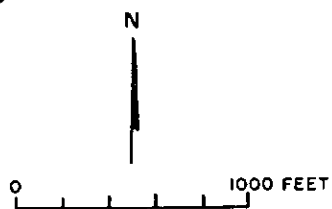
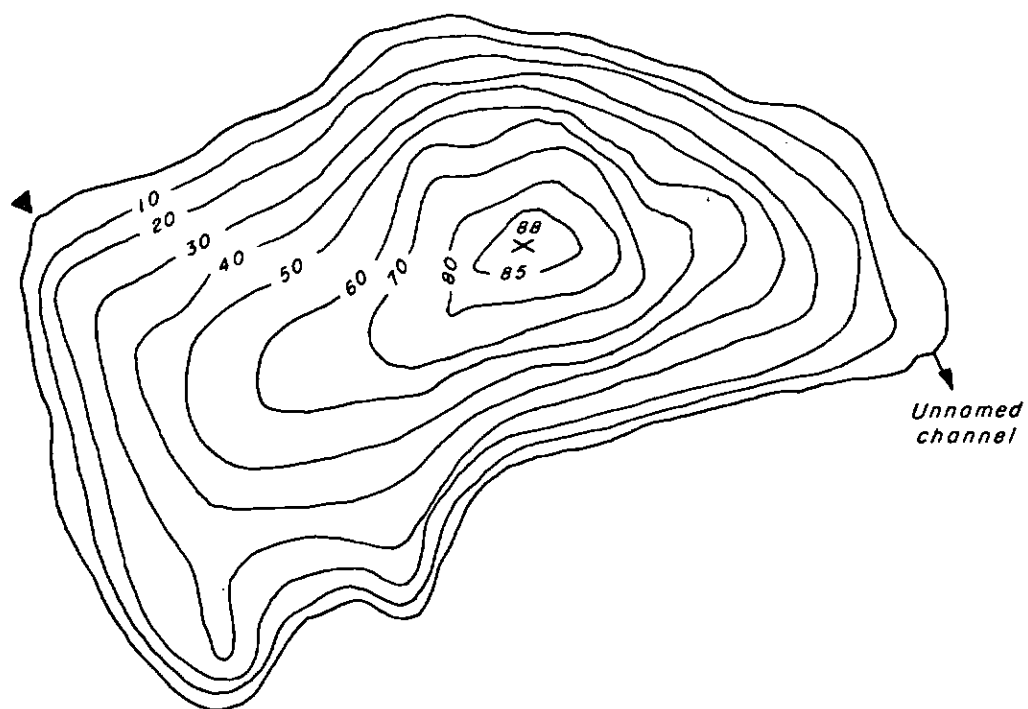
-----  
SAMPLE SITE 1  
DATE 10/ 9/70  
TIME 1330 1340  
DEPTH (FT) 3. 72.  
DISSOLVED NITRATE (N) 0.00 0.04  
TOTAL NITRITE (N) 0.00 0.04  
TOTAL AMMONIA (N) 0.00 0.07  
TOTAL ORGANIC NITROGEN (N) -- --  
TOTAL PHOSPHORUS (P) 0.009 0.12  
DISSOLVED ORTHOPHOSPHATE (P) 0.000 0.10  
SPECIFIC CONDUCTANCE (MICROMHOS) 52 54  
WATER TEMPERATURE (DEG C) 14.9 6.0  
COLOR (PLATINUM-COBALT UNITS) 0 20  
SECCHI-DISC VISIBILITY (FT) 22  
DISSOLVED OXYGEN 9.8 0.2

LAKE SHORELINE COVERED BY EMERSED PLANTS 1- 10 %  
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE 8/26/74  
TIME 1200  
NUMBER OF FECAL COLIFORM SAMPLES 3  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) 5  
FECAL COLIFORM, MEAN (COL./100ML) 2

## REMARKS

-----  
THE LAKE RECEIVES HEAVY RECREATIONAL USE. THE SAND AND GRAVEL LITTORAL BOTTOM SUPPORTED FEW EMERSED PLANTS, BUT A BAND OF SUBMERSED PLANTS (WATER MILFOIL) SURROUNDED THE LAKESHORE. IN 1970 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE THREE TIMES. THE PLANT SURVEY WAS MADE ON OCTOBER 9, 1970.



EXPLANATION

— 20 —

Line of equal  
water depth

Interval 5 and  
10 feet

Clear Lake, Pierce County. From Washington  
Department of Game, February 7, 1949.





Clear Lake, Pierce County. July 14, 1971. Approx. scale 1:8000.

## COPLAY LAKE

## PIERCE COUNTY

LATITUDE 47° 1'33" LONGITUDE 121°50' 0" T18N-R8E-30  
PUYALLUP RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 1.69 SQ MI  
ALTITUDE 3880. FT  
LAKE AREA 19. ACRES  
LAKE VOLUME 490. ACRE-FT  
MEAN DEPTH 26. FT  
MAXIMUM DEPTH 57. FT  
SHORELINE LENGTH 0.92 MI  
SHORELINE CONFIGURATION 1.3  
DEVELOPMENT OF VOLUME 0.46  
BOTTOM SLOPE 5.6 %  
BASIN GEOLOGY IGNEOUS  
INFLOW INTERMITTENT  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 0 %  
NUMBER OF NEARSHORE HOMES 0  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 0 %  
AGRICULTURAL 0 %  
FOREST OR UNPRODUCTIVE 98 %  
LAKE SURFACE 2 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

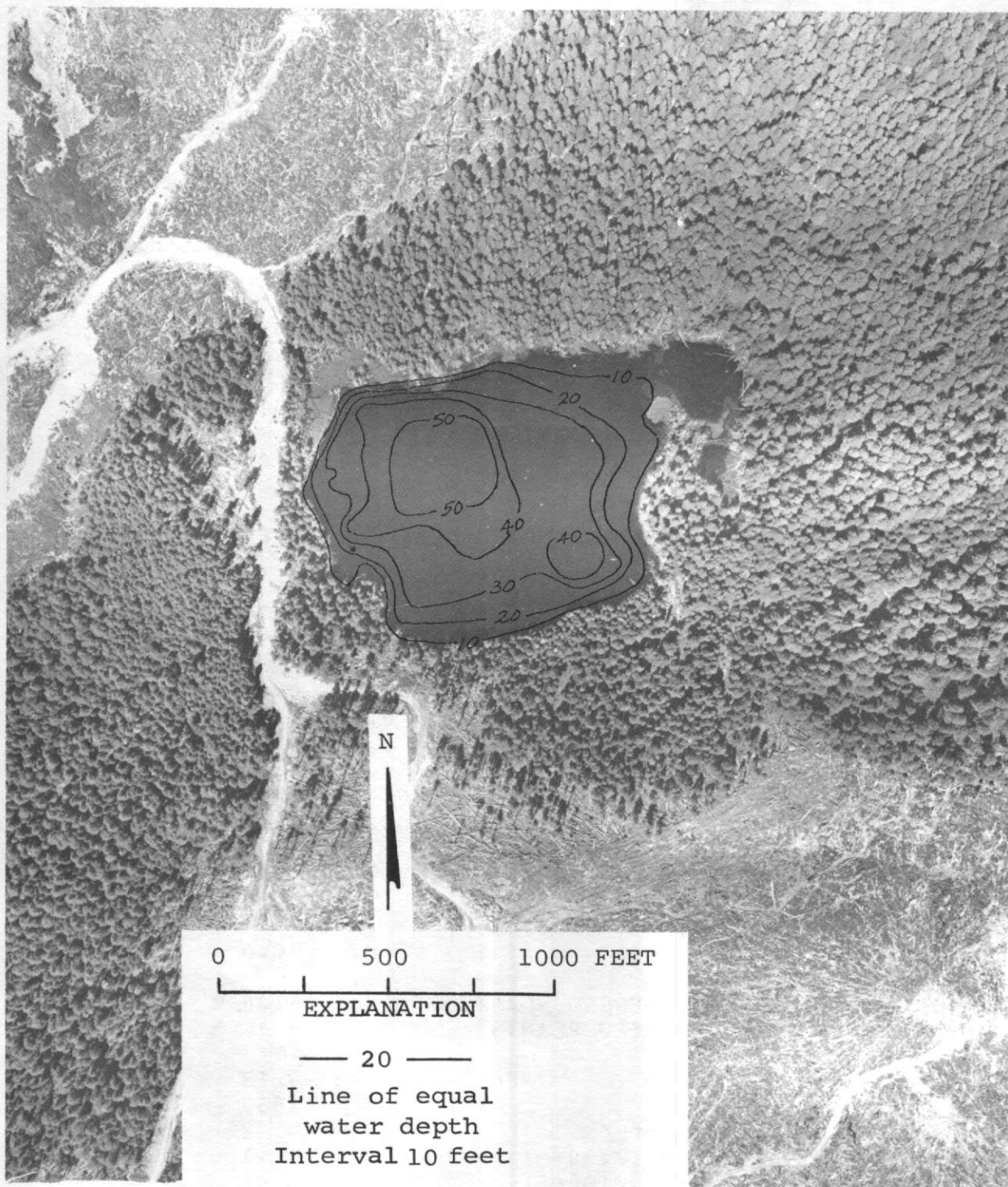
-----  
SAMPLE SITE 1  
DATE 8/ 9/73  
TIME 1845 1850  
DEPTH (FT) 3. 36.  
TOTAL NITRATE (N) 0.01 0.01  
TOTAL NITRITE (N) 0.00 0.00  
TOTAL AMMONIA (N) 0.05 0.30  
TOTAL ORGANIC NITROGEN (N) 0.03 0.04  
TOTAL PHOSPHORUS (P) 0.006 0.022  
TOTAL ORTHOPHOSPHATE (P) 0.003 0.007  
SPECIFIC CONDUCTANCE (MICROMHOS) 18 36  
WATER TEMPERATURE (DEG C) 17.9 3.9  
COLOR (PLATINUM-COBALT UNITS) 15 25  
SECCHI-DISC VISIBILITY (FT) 16  
DISSOLVED OXYGEN 8.5 0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS 76-100 %  
LAKE SURFACE COVERED BY EMERSED PLANTS 1- 10 %

DATE 8/ 9/73  
TIME 1850  
NUMBER OF FECAL COLIFORM SAMPLES 2  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) <1  
FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
A THIN BAND OF EMERSED PLANTS (HORSETAIL, LILIES, AND GRASSES) COVERED THE SHORELINE. THE LITTORAL BOTTOM IN LOCAL AREAS IS COMPOSED OF MUCK. THE DO WAS NEAR DEPLETION BELOW 25 FEET OF WATER. THE WATER SAMPLE CONTAINED ABUNDANT RED COPEPODS. FLOATING LOGS COVERED THE SHORELINE LOCALLY.



Coplay Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, September 2, 1973.  
Aerial photo, July 14, 1973.

## CRANBERRY LAKE

## PIERCE COUNTY

LATITUDE 46°53'51" LONGITUDE 122°21'46" T16N-R3E-1  
NISQUALLY RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 0.55 SQ MI  
ALTITUDE 644. FT  
LAKE AREA 37. ACRES  
LAKE VOLUME 430. ACRE-FT  
MEAN DEPTH 12. FT  
MAXIMUM DEPTH 19. FT  
SHORELINE LENGTH 0.86 MI  
SHORELINE CONFIGURATION 1.0  
DEVELOPMENT OF VOLUME 0.65  
BOTTOM SLOPE 1.3 %  
BASIN GEOLOGY SED./META.  
INFLOW INTERMITTENT  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 6 %  
NUMBER OF NEARSHORE HOMES 2  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 0 %  
AGRICULTURAL 50 %  
FOREST OR UNPRODUCTIVE 40 %  
LAKE SURFACE 10 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

-----  
SAMPLE SITE 1  
DATE 8/11/73  
TIME 1425 1430  
DEPTH (FT) 3. 11.  
TOTAL NITRATE (N) 0.16 0.00  
TOTAL NITRITE (N) 0.01 0.01  
TOTAL AMMONIA (N) 0.19 0.29  
TOTAL ORGANIC NITROGEN (N) 0.81 0.91  
TOTAL PHOSPHORUS (P) 0.037 0.040  
TOTAL ORTHOPHOSPHATE (P) 0.012 0.020  
SPECIFIC CONDUCTANCE (MICROMHOS) 66 72  
WATER TEMPERATURE (DEG C) 20.9 12.0  
COLOP (PLATINUM-COBALT UNITS) 100 175  
SECCHI-DISC VISIBILITY (FT) 3  
DISSOLVED OXYGEN 7.7 0.1

LAKE SHORELINE COVERED BY EMERSED PLANTS 76-100 %  
LAKE SURFACE COVERED BY EMERSED PLANTS 1- 10 %

DATE 8/11/73  
TIME 1430  
NUMBER OF FECAL COLIFORM SAMPLES 2  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) <1  
FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
A MARSH AND PEAT BOG SURROUND THE LAKE. THE WATER IS A DARK BROWN COLOR.  
EMERSED PLANTS COVERED THE SHORELINE IN A NARROW BAND. THE OUTLET HAS  
BEEN DREDGED.





EXPLANATION  
— 10 —  
Line of equal  
water depth  
Interval 5 feet

Cranberry Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, June 14, 1973.  
Aerial photo, April 3, 1973.

## CRESCENT LAKE

## PIERCE COUNTY

LATITUDE 47°23'18" LONGITUDE 122°34'19" T22N-R2E-20  
 PUGET SOUND BASIN

## PHYSICAL DATA

-----

DRAINAGE AREA	1.18 SQ MI
ALTITUDE	166. FT
LAKE AREA	50. ACRES
LAKE VOLUME	780. ACRE-FT
MEAN DEPTH	16. FT
MAXIMUM DEPTH	29. FT
SHORELINE LENGTH	1.4 MI
SHORELINE CONFIGURATION	1.4
DEVELOPMENT OF VOLUME	0.54
OTTOM SLOPE	1.3 %
BASIN GEOLOGY	SED./META.
INFLOW	INTERMITTENT
OUTFLOW CHANNEL	PRESENT

## CULTURAL DATA

-----

RESIDENTIAL DEVELOPMENT	42 %
NUMBER OF NEARSHORE HOMES	33
LAND USE IN DRAINAGE BASIN	
RESIDENTIAL URBAN	0 %
RESIDENTIAL SUBURBAN	1 %
AGRICULTURAL	3 %
FOREST OR UNPRODUCTIVE	89 %
LAKE SURFACE	7 %
PUBLIC BOAT ACCESS TO LAKE	YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

-----

## SAMPLE SITE

DATE	10/ 5/70
TIME	1540 1550
DEPTH (FT)	4. 25.
DISSOLVED NITRATE (N)	0.02 0.04
TOTAL NITRITE (N)	0.00 0.00
TOTAL AMMONIA (N)	0.07 0.16
TOTAL ORGANIC NITROGEN (N)	-- --
TOTAL PHOSPHORUS (P)	0.013 0.026
DISSOLVED ORTHOPHOSPHATE (P)	0.010 0.013
SPECIFIC CONDUCTANCE (MICROMHOS)	57 75
WATER TEMPERATURE (DEG C)	14.8 13.0
COLOR (PLATINUM-COBALT UNITS)	30 --
SECCHI-DISC VISIRILITY (FT)	5
DISSOLVED OXYGEN	9.0 0.5

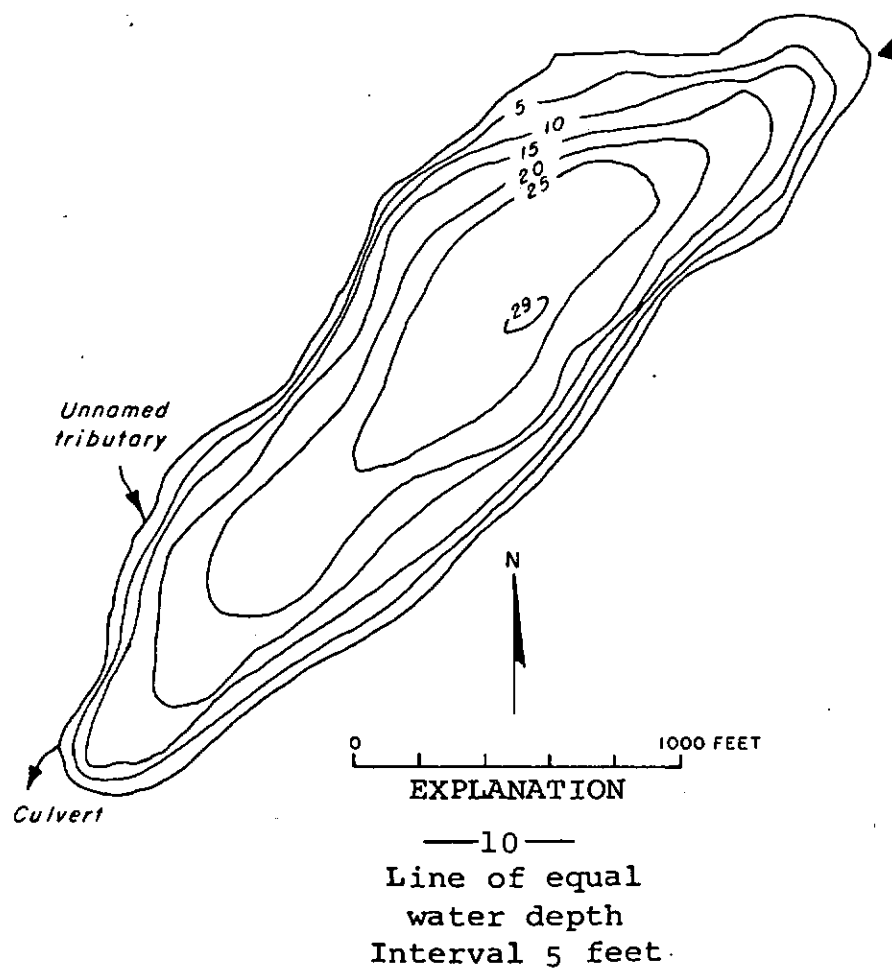
LAKE SHORELINE COVERED BY EMERSED PLANTS	76-100 %
LAKE SURFACE COVERED BY EMERSED PLANTS	11- 25 %

DATE	8/27/74
TIME	1530
NUMBER OF FECAL COLIFORM SAMPLES	7
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	7
FECAL COLIFORM, MEAN (COL./100ML)	2

## REMARKS

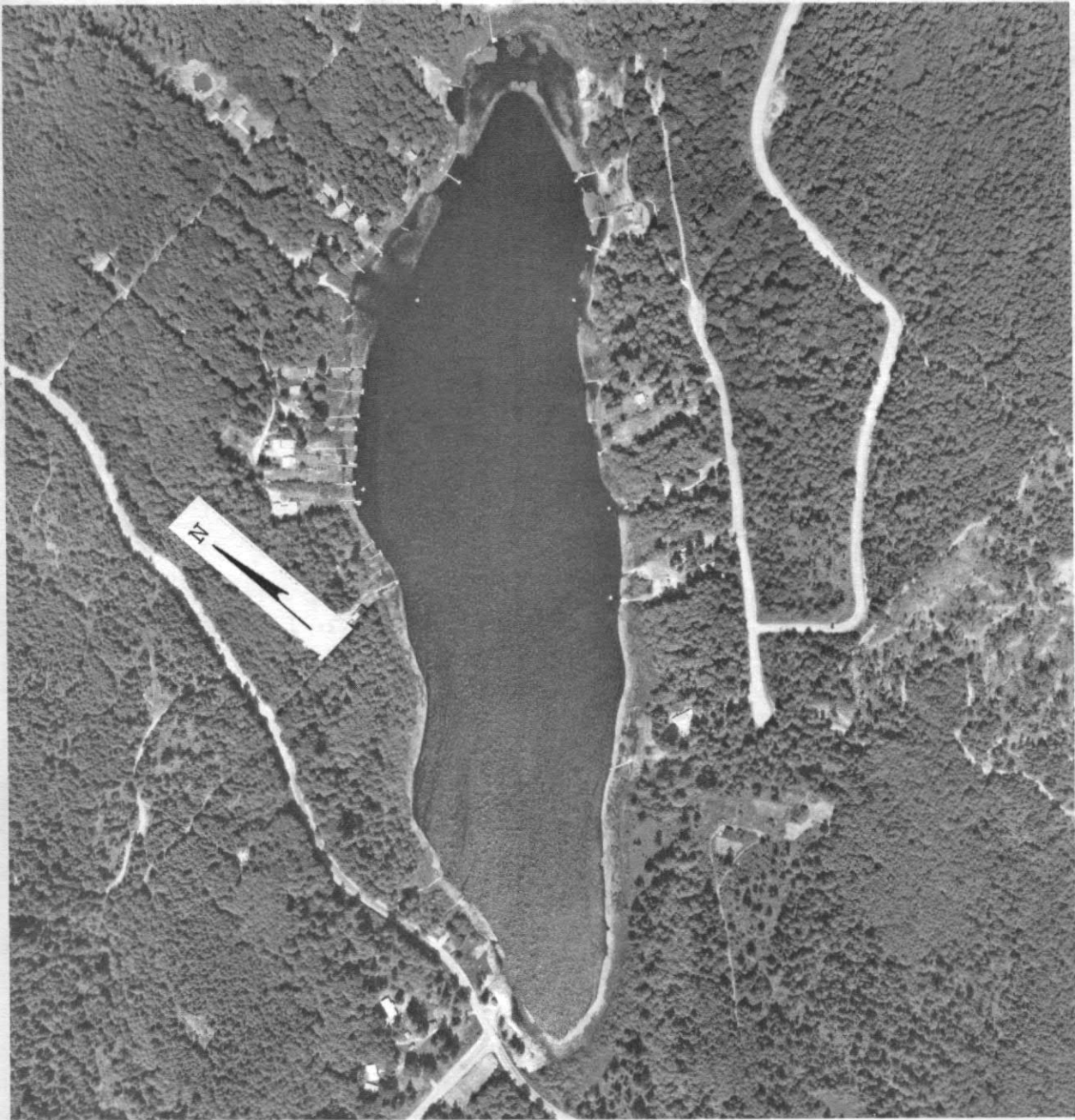
-----

THE LAKE HAD A HEAVY COVER OF BOTH EMERSED PLANTS (LILIES, WATERSHIELD, AND SEDGES) AND SUBMERSED PLANTS (PONDWEED). THE LITTORAL ZONE OF THE LAKE IS GENERALLY MUCK, SILT, SAND, AND GRAVEL. IN 1970 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE THREE TIMES.



Crescent Lake, Pierce County. From Washington  
 Department of Game, August 19, 1947.





Crescent Lake, Pierce County. July 14, 1971. Approx. scale 1:6200.

## ECHO LAKE

## PIERCE COUNTY

LATITUDE 47° 2'39" LONGITUDE 121°25'19" T18N-R11E-16  
 PUYALLUP RIVER BASIN

## PHYSICAL DATA

-----  
 DRAINAGE AREA 11.1 SQ MI  
 ALTITUDE 3819. FT  
 LAKE AREA 49. ACRES  
 LAKE VOLUME 1100. ACRE-FT  
 MEAN DEPTH 22. FT  
 MAXIMUM DEPTH 35. FT  
 SHORELINE LENGTH 1.3 MI  
 SHORELINE CONFIGURATION 1.3  
 DEVELOPMENT OF VOLUME 0.63  
 BOTTOM SLOPE 2.1 %  
 BASIN GEOLOGY IGNEOUS  
 INFLOW INTERMITTENT  
 OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
 RESIDENTIAL DEVELOPMENT 0 %  
 NUMBER OF NEARSHORE HOMES 0  
 LAND USE IN DRAINAGE BASIN  
 RESIDENTIAL URBAN 0 %  
 RESIDENTIAL SUBURBAN 0 %  
 AGRICULTURAL 0 %  
 FOREST OR UNPRODUCTIVE 99 %  
 LAKE SURFACE 1 %  
 PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

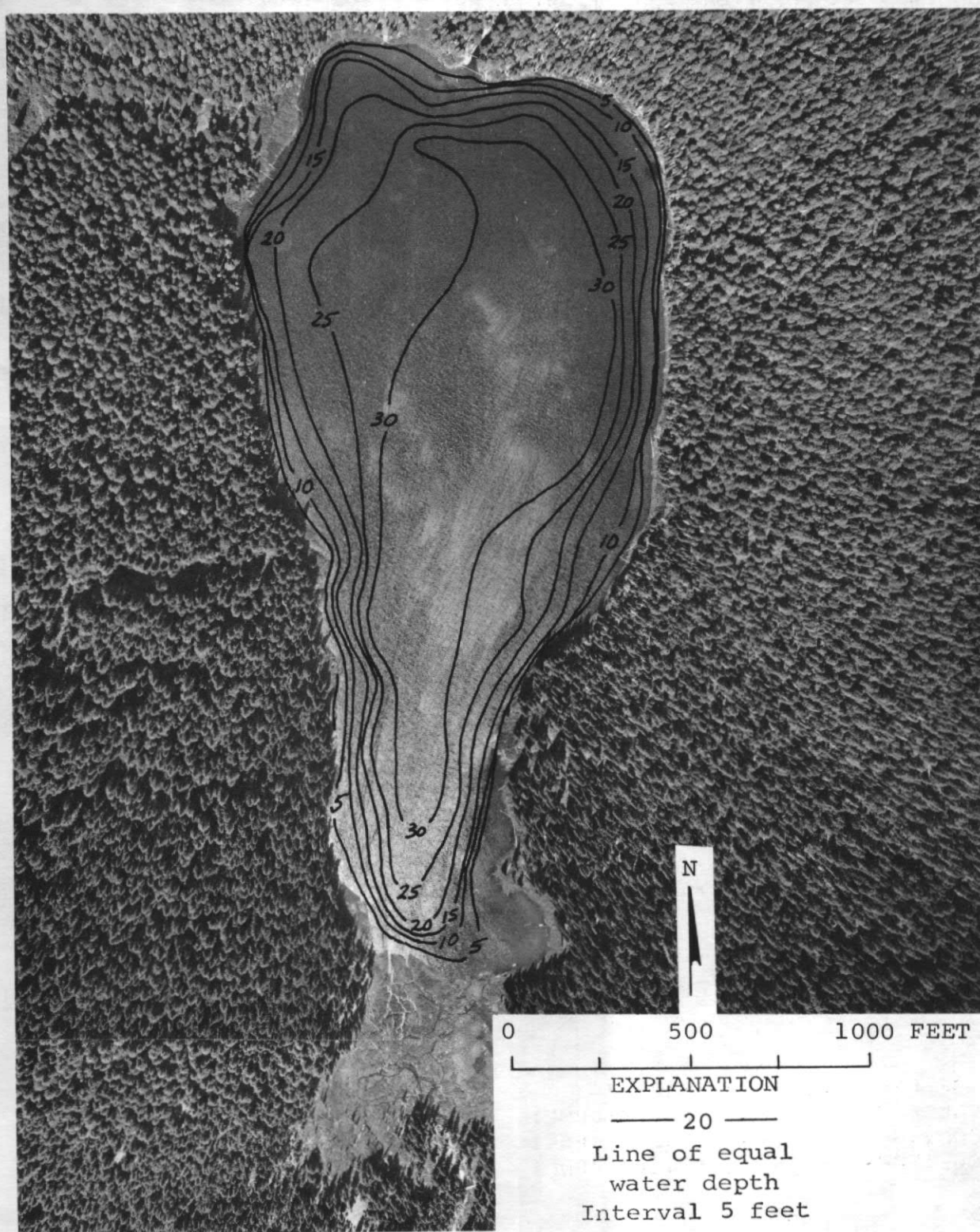
-----  
 SAMPLE SITE 1  
 DATE 8/ 9/73  
 TIME 1015 1020  
 DEPTH (FT) 3. 28.  
 TOTAL NITRATE (N) 0.01 0.00  
 TOTAL NITRITE (N) 0.00 0.00  
 TOTAL AMMONIA (N) 0.04 0.08  
 TOTAL ORGANIC NITROGEN (N) 0.06 0.11  
 TOTAL PHOSPHORUS (P) 0.012 0.042  
 TOTAL ORTHOPHOSPHATE (P) 0.007 0.026  
 SPECIFIC CONDUCTANCE (MICROMHOS) 55 52  
 WATER TEMPERATURE (DEG C) 15.9 11.3  
 COLOR (PLATINUM-COBALT UNITS) 0 0  
 SECCHI-DISC VISIBILITY (FT) >32  
 DISSOLVED OXYGEN 8.7 8.3

LAKE SHORELINE COVERED BY EMERSED PLANTS 76-100 %  
 LAKE SURFACE COVERED BY EMERSED PLANTS 1- 10 %

DATE 8/ 9/73  
 TIME 1025  
 NUMBER OF FECAL COLIFORM SAMPLES 2  
 FECAL COLIFORM, MINIMUM (COL./100ML) <1  
 FECAL COLIFORM, MAXIMUM (COL./100ML) <1  
 FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
 A THIN BAND OF EMERSED PLANTS COVERED THE SHORELINE AND SUBMERSED  
 PLANTS (PONDWEED) COVERED THE BOTTOM NEAR THE INFLOW AND OUTFLOW.  
 THE WATER SAMPLE CONTAINED ABUNDANT RED COPEPODS. FLOATING AND SUBMERGED  
 LOGS LITTERED THE SHORELINE.



Echo Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, August 27, 1973.  
Aerial photo, August 3, 1973.

## FLORENCE LAKE

## PIERCE COUNTY

LATITUDE 47° 9' 57" LONGITUDE 122° 41' 13" T19N-R1E-4  
 PUGET SOUND BASIN

## PHYSICAL DATA

## CULTURAL DATA

DRAINAGE AREA	0.40 SQ MI	RESIDENTIAL DEVELOPMENT	11 %
ALTITUDE	197. FT	NUMBER OF NEARSHORE HOMES	6
LAKE AREA	67. ACRES	LAND USE IN DRAINAGE BASIN	
LAKE VOLUME	1300. ACRE-FT	RESIDENTIAL URBAN	0 %
MEAN DEPTH	19. FT	RESIDENTIAL SUBURBAN	0 %
MAXIMUM DEPTH	31. FT	AGRICULTURAL	0 %
SHORELINE LENGTH	2.0 MI	FOREST OR UNPRODUCTIVE	74 %
SHORELINE CONFIGURATION	1.8	LAKE SURFACE	26 %
DEVELOPMENT OF VOLUME	0.62		
BOTTOM SLOPE	1.6 %		
BASIN GEOLOGY	SED./META.		
INFLOW	NONE VISIBLE		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

SAMPLE SITE	1
DATE	8/21/74
TIME	1130 1135
DEPTH (FT)	3. 23.
TOTAL NITRATE (N)	0.02 0.02
TOTAL NITRITE (N)	0.00 0.00
TOTAL AMMONIA (N)	0.05 0.05
TOTAL ORGANIC NITROGEN (N)	0.48 0.47
TOTAL PHOSPHORUS (P)	0.010 0.011
TOTAL ORTHOPHOSPHATE (P)	0.004 0.004
SPECIFIC CONDUCTANCE (MICROMHOS)	40 40
WATER TEMPERATURE (DEG C)	20.1 19.9
COLOR (PLATINUM-COBALT UNITS)	5 5
SECCHI-DISC VISIBILITY (FT)	12
DISSOLVED OXYGEN	8.2 8.0

LAKE SHORELINE COVERED BY EMERSED PLANTS	1- 10 %
LAKE SURFACE COVERED BY EMERSED PLANTS	NONE OR <1 %

DATE	8/21/74
TIME	1200
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	1

## REMARKS

THE LAKE IS ON ANDERSON ISLAND. TREES AND SHRUBS OVERHANG THE SHORE. AQUATIC MACROPHYTES WERE SPARSE. THE DO WAS NEAR SATURATION THROUGHOUT THE ENTIRE WATER COLUMN. LOGS AND WOOD DEBRIS COVERED THE SHORELINE.





Florence Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, February 7, 1974.  
Aerial photo, May 24, 1970.

## FOREST LAKE

## PIERCE COUNTY

LATITUDE 47° 2'54" LONGITUDE 122°11'29" T18N-R5E-17  
PUYALLUP RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 0.46 SQ MI  
ALTITUDE 530. FT  
LAKE AREA 6. ACRES  
LAKE VOLUME 77. ACRE-FT  
MEAN DEPTH 12. FT  
MAXIMUM DEPTH 38. FT  
SHORELINE LENGTH 0.49 MI  
SHORELINE CONFIGURATION 1.4  
DEVELOPMENT OF VOLUME 0.36  
BOTTOM SLOPE 5.8 %  
BASIN GEOLOGY SED./META.  
INFLOW INTERMITTENT  
OUTFLOW CHANNEL ABSENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 0 %  
NUMBER OF NEARSHORE HOMES 0  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 0 %  
AGRICULTURAL 9 %  
FOREST OR UNPRODUCTIVE 89 %  
LAKE SURFACE 2 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

## SAMPLE SITE

-----  
DATE 10/ 9/70  
TIME 1020 1030  
DEPTH (FT) 3. 27.  
DISSOLVED NITRATE (N) 0.20 0.20  
DISSOLVED NITRITE (N) 0.01 0.00  
TOTAL AMMONIA (N) 0.10 0.32  
TOTAL ORGANIC NITROGEN (N) -- --  
TOTAL PHOSPHORUS (P) 0.016 0.049  
DISSOLVED ORTHOPHOSPHATE (P) 0.016 0.049  
SPECIFIC CONDUCTANCE (MICROMHOS) 85 130  
WATER TEMPERATURE (DEG C) 12.0 5.1  
COLOR (PLATINUM-COBALT UNITS) 20 50  
SECCHI-DISC VISIBILITY (FT) 8  
DISSOLVED OXYGEN 6.6 0.2

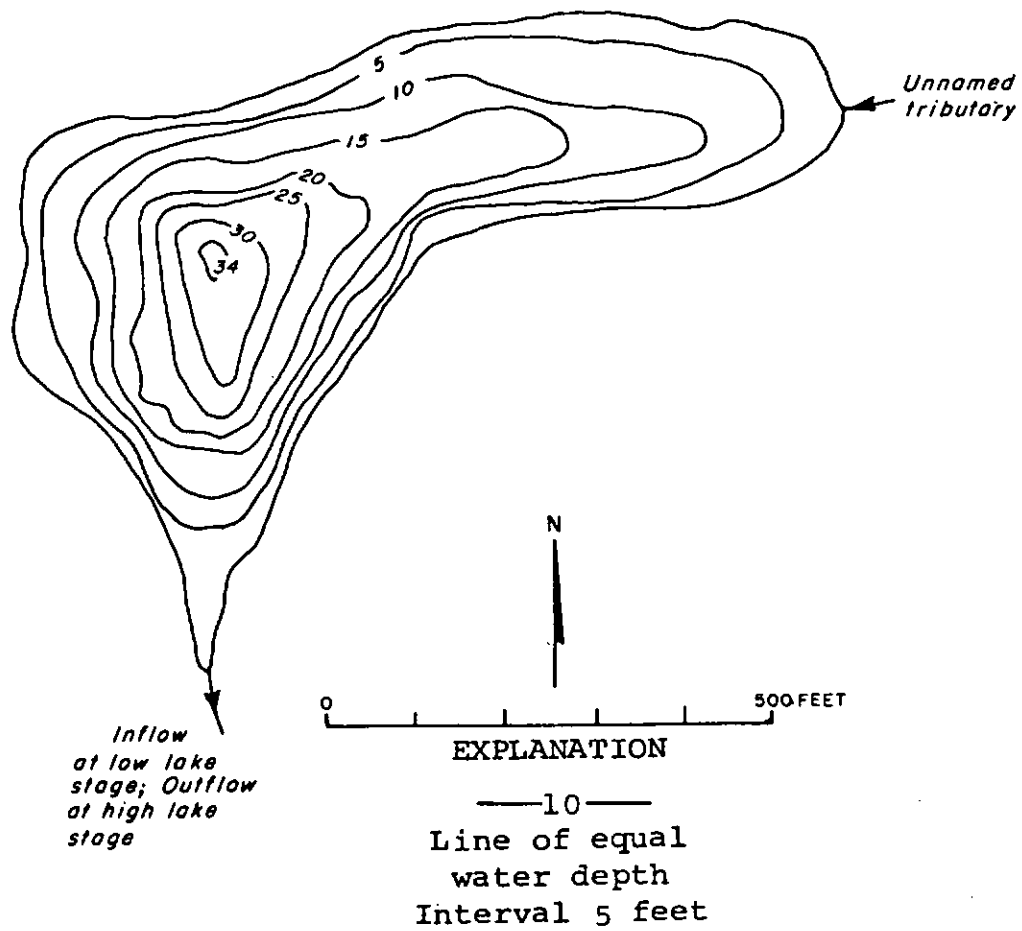
LAKE SHORELINE COVERED BY EMERSED PLANTS  
LAKE SURFACE COVERED BY EMERSED PLANTS

LITTLE OR NONE  
NONE OR <1 %

DATE 0/ 0/ 0  
TIME 0  
NUMBER OF FECAL COLIFORM SAMPLES 0  
FECAL COLIFORM, MINIMUM (COL./100ML) --  
FECAL COLIFORM, MAXIMUM (COL./100ML) --  
FECAL COLIFORM, MEAN (COL./100ML) --

## REMARKS

-----  
THE LAKE IS IN A CONICAL-SHAPED DEPRESSION AND IS PROTECTED FROM THE WIND BY A HEAVY FOREST COVER. THE LITTORAL ZONE (SOFT MUCK) IS COVERED WITH FALLEN LOGS AND ORGANIC DEBRIS. THE MACROPHYTES WERE SPARSE. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. IN 1970 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE THREE TIMES. THE PLANT SURVEY WAS MADE ON OCTOBER 9, 1970.



Forest Lake, Pierce County. From Washington  
Department of Game, August 17, 1947.





Forest Lake, Pierce County. July 14, 1971. Approx. scale 1:6600.

## GRAVELLY LAKE

## PIERCE COUNTY

LATITUDE 47° 8'32" LONGITUDE 122°31'45" T19N-R2E-10  
CHAMBERS CREEK BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 0.66 SQ MI  
ALTITUDE 220. FT  
LAKE AREA 160. ACRES  
LAKE VOLUME 6000. ACRE-FT  
MEAN DEPTH 38. FT  
MAXIMUM DEPTH 55. FT  
SHORELINE LENGTH 2.1 MI  
SHORELINE CONFIGURATION 1.2  
DEVELOPMENT OF VOLUME 0.68  
BOTTOM SLOPE 1.8 %  
BASIN GEOLOGY SED./META.  
INFLOW NONE VISIBLE  
OUTFLOW CHANNEL ABSENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 100 %  
NUMBER OF NEARSHORE HOMES 91  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 40 %  
RESIDENTIAL SUBURBAN 22 %  
AGRICULTURAL 0 %  
FOREST OR UNPRODUCTIVE 0 %  
LAKE SURFACE 38 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

## SAMPLE SITE

-----  
1  
DATE 10/ 8/70  
TIME 1510 1520  
DEPTH (FT) 3. 49.  
DISSOLVED NITRATE (N) 0.40 2.7  
DISSOLVED NITRITE (N) 0.02 0.00  
TOTAL AMMONIA (N) 0.11 3.1  
TOTAL ORGANIC NITROGEN (N) -- --  
TOTAL PHOSPHORUS (P) 0.026 0.78  
DISSOLVED ORTHOPHOSPHATE (P) 0.026 0.78  
SPECIFIC CONDUCTANCE (MICROMHOS) 138 177  
WATER TEMPERATURE (DEG C) 15.0 9.2  
COLOR (PLATINUM-COBALT UNITS) 0 5  
SECCHI-DISC VISIBILITY (FT) 35  
DISSOLVED OXYGEN 9.2 0.1

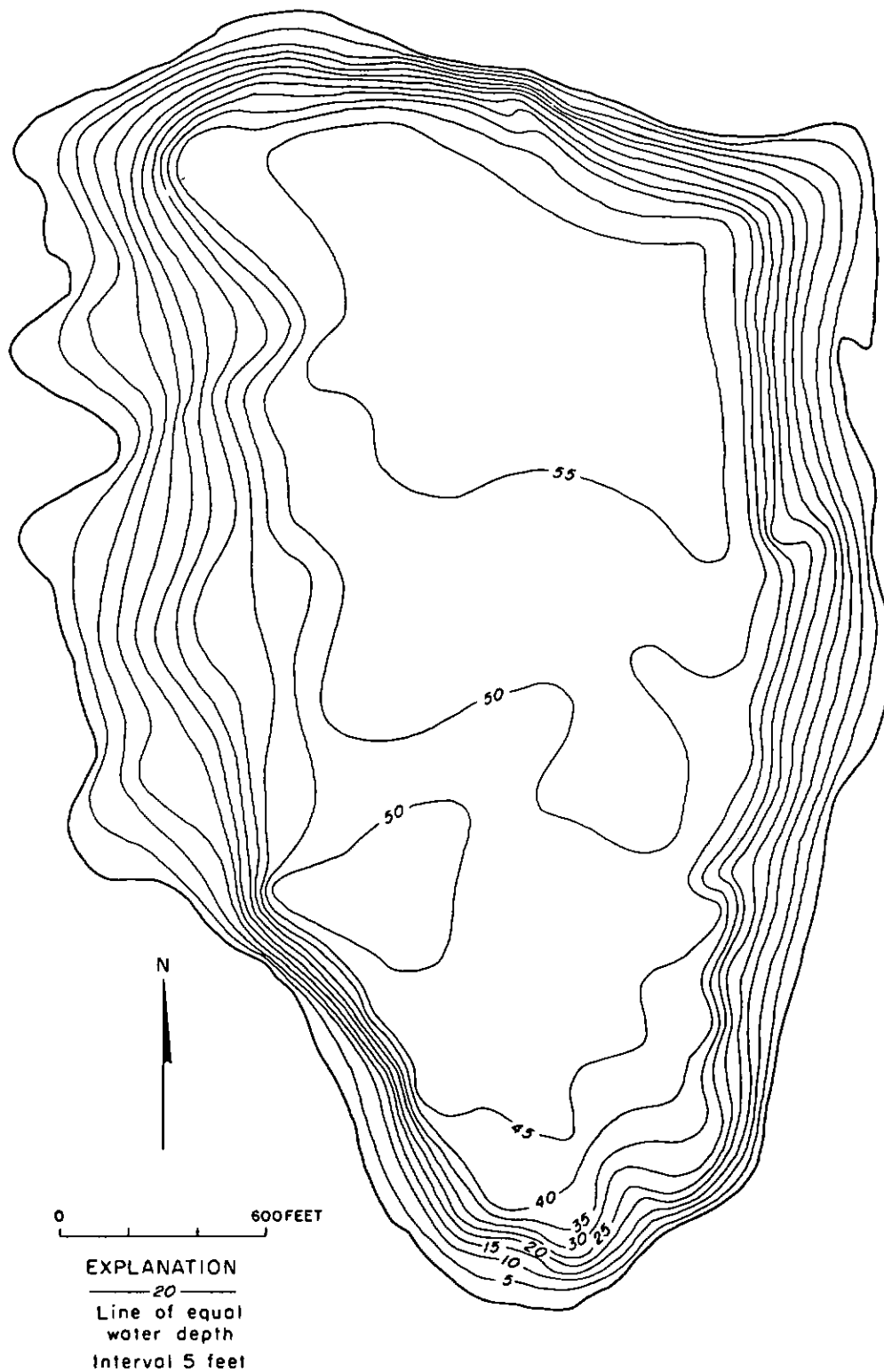
LAKE SHORELINE COVERED BY EMERSED PLANTS  
LAKE SURFACE COVERED BY EMERSED PLANTS

LITTLE OR NONE  
NONE OR <1 %

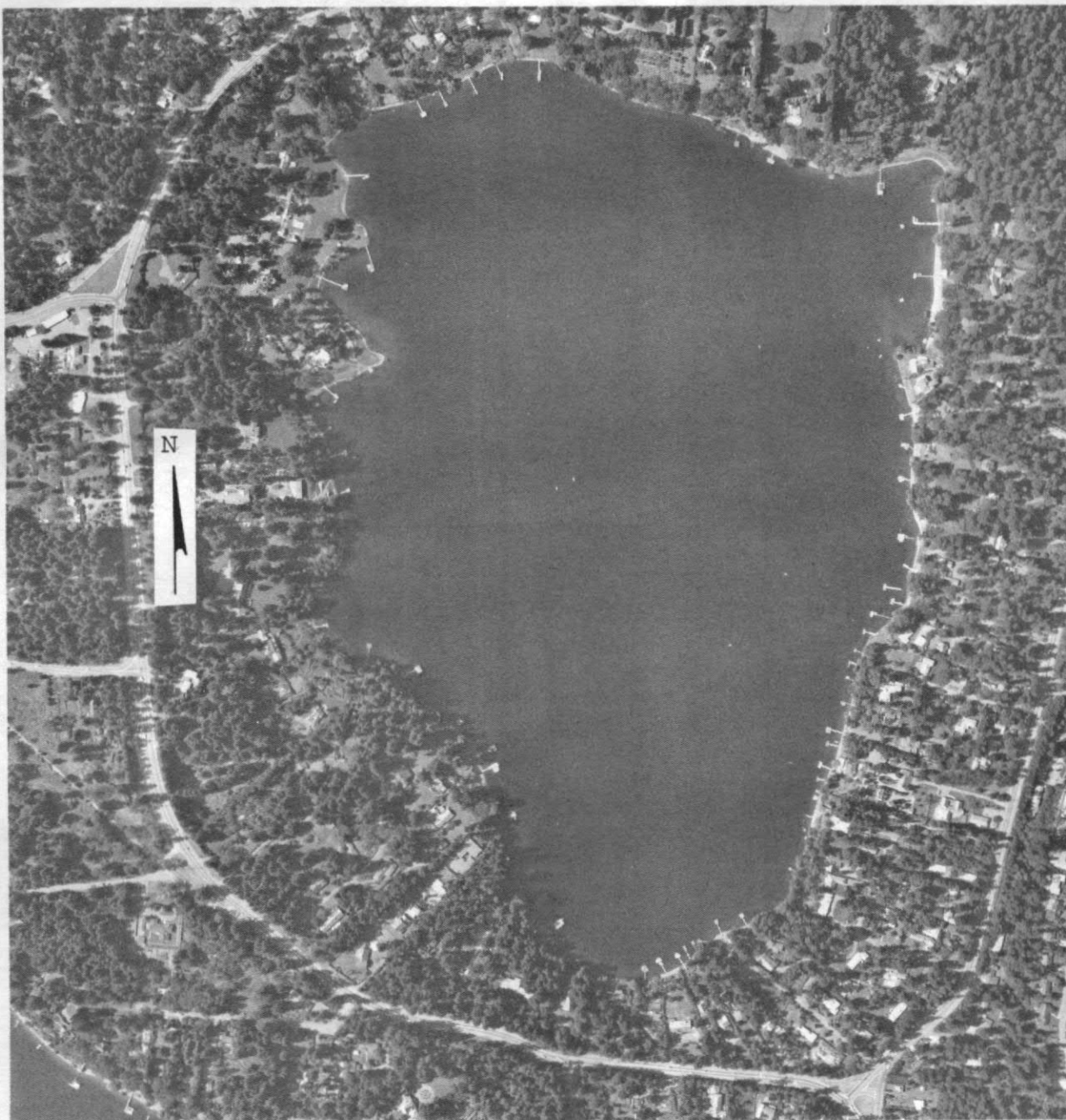
DATE 8/21/74  
TIME 1340  
NUMBER OF FECAL COLIFORM SAMPLES 3  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) 1  
FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
AN URBAN LAKE LOCATED SOUTH OF TACOMA. THE GRAVEL LITTORAL ZONE OF THE LAKE SUPPORTED VERY FEW MACROPHYTES. HOWEVER, THE LAKE HAS BEEN TREATED WITH ALGACIDES AND HERBICIDES. IN 1970 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE THREE TIMES. THE PLANT SURVEY WAS MADE ON OCTOBER 8, 1970.



Gravelly Lake, Pierce County. From  
U.S. Geological Survey, July 1970.



Gravelly Lake, Pierce County. July 14, 1971. Approx. scale 1:8400.

LATITUDE 47° 5' 9" LONGITUDE 121°26'42" T19N-R11E-31  
PUYALLUP RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 27.5 SQ MI  
ALTITUDE 2846. FT  
LAKE AREA 5. ACRES  
LAKE VOLUME (EST.) 44. ACRE-FT  
MEAN DEPTH (EST.) 9. FT  
MAXIMUM DEPTH 16. FT  
SHORELINE LENGTH 0.57 MI  
SHORELINE CONFIGURATION 1.8  
DEVELOPMENT OF VOLUME 0.55  
BOTTOM SLOPE 3.0 %  
BASIN GEOLOGY IGNEOUS  
INFLOW PERENNIAL  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 0 %  
NUMBER OF NEARSHORE HOMES 0  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 0 %  
AGRICULTURAL 0 %  
FOREST OR UNPRODUCTIVE 100 %  
LAKE SURFACE <1 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

-----  
SAMPLE SITE 1  
DATE 8/ 9/73  
TIME 1155 1200  
DEPTH (FT) 3. 12.  
TOTAL NITRATE (N) 0.07 0.07  
TOTAL NITRITE (N) 0.00 0.00  
TOTAL AMMONIA (N) 0.01 0.01  
TOTAL ORGANIC NITROGEN (N) 0.02 0.00  
TOTAL PHOSPHORUS (P) 0.030 0.032  
TOTAL ORTHOPHOSPHATE (P) 0.030 0.032  
SPECIFIC CONDUCTANCE (MICROMHOS) 64 64  
WATER TEMPERATURE (DEG C) 10.2 10.0  
COLOR (PLATINUM-COBALT UNITS) 0 0  
SECCHI-DISC VISIBILITY (FT) >16  
DISSOLVED OXYGEN 9.6 9.8

LAKE SHORELINE COVERED BY EMERSED PLANTS 11- 25 %  
LAKE SURFACE COVERED BY EMERSED PLANTS 1- 10 %

DATE 8/ 9/73  
TIME 1230  
NUMBER OF FECAL COLIFORM SAMPLES 2  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) <1  
FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
THE LAKE IS A SMALL POOL IN THE CHANNEL OF THE GREENWATER RIVER. THUS,  
THE FLUSHING RATE FOR THE LAKE WOULD BE VERY HIGH. LOGS AND WOOD DEBRIS  
CHOKES THE OUTLET CHANNEL.





Greenwater, Upper Lake, Pierce County.  
July 14, 1973. Approx. scale 1:4800.



## HARTS LAKE

## PIERCE COUNTY

LATITUDE 46°53'32" LONGITUDE 122°28'18" T16N-R3E-7  
NISQUALLY RIVER BASIN

## PHYSICAL DATA

## CULTURAL DATA

-----	-----	-----	-----
DRAINAGE AREA	3.57 SQ MI	RESIDENTIAL DEVELOPMENT	10 %
ALTITUDE	347. FT		
LAKE AREA	120. ACRES	NUMBER OF NEARSHORE HOMES	6
LAKE VOLUME	3100. ACRE-FT		
MEAN DEPTH	26. FT	LAND USE IN DRAINAGE BASIN	
MAXIMUM DEPTH	50. FT		
SHORELINE LENGTH	1.6 MI	RESIDENTIAL URBAN	0 %
SHORELINE CONFIGURATION	1.0	RESIDENTIAL SUBURBAN	<1 %
DEVELOPMENT OF VOLUME	0.52	AGRICULTURAL	20 %
BOTTOM SLOPE	5.5 %	FOREST OR UNPRODUCTIVE	74 %
BASIN GEOLOGY	SED./META.	LAKE SURFACE	6 %
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

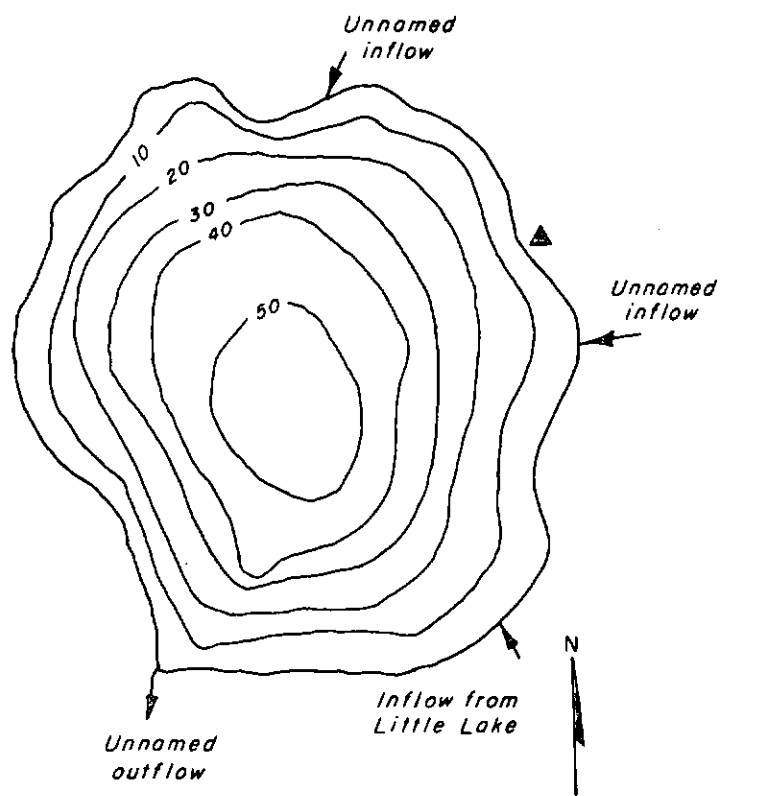
-----	-----	-----
SAMPLE SITE	1	
DATE	8/13/71	
TIME	1130 1135	
DEPTH (FT)	3. 39.	
DISSOLVED NITRATE (N)	0.02 0.05	
TOTAL NITRITE (N)	-- --	
TOTAL AMMONIA (N)	0.12 0.75	
TOTAL ORGANIC NITROGEN (N)	-- --	
TOTAL PHOSPHORUS (P)	0.030 0.52	
DISSOLVED ORTHOPHOSPHATE (P)	0.010 0.49	
SPECIFIC CONDUCTANCE (MICROMHOS)	115 155	
WATER TEMPERATURE (DEG C)	24.9 6.5	
COLOR (PLATINUM-COBALT UNITS)	30 75	
SECCHI-DISC VISIRILITY (FT)	11	
DISSOLVED OXYGEN	6.6 0.2	

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 76 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	8/26/74
TIME	1100
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	3
FECAL COLIFORM, MEAN (COL./100ML)	2

## REMARKS

-----  
EMERSED AQUATIC MACROPHYTES COVERED MOST OF THE SHORELINE. THE LITTORAL ZONE IS COMPOSED OF SILT, MUCK, AND SOME LOCAL PATCHES OF GRAVEL. HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION. IN 1971 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE SIX TIMES. THE PLANT SURVEY WAS MADE ON AUGUST 13, 1971.



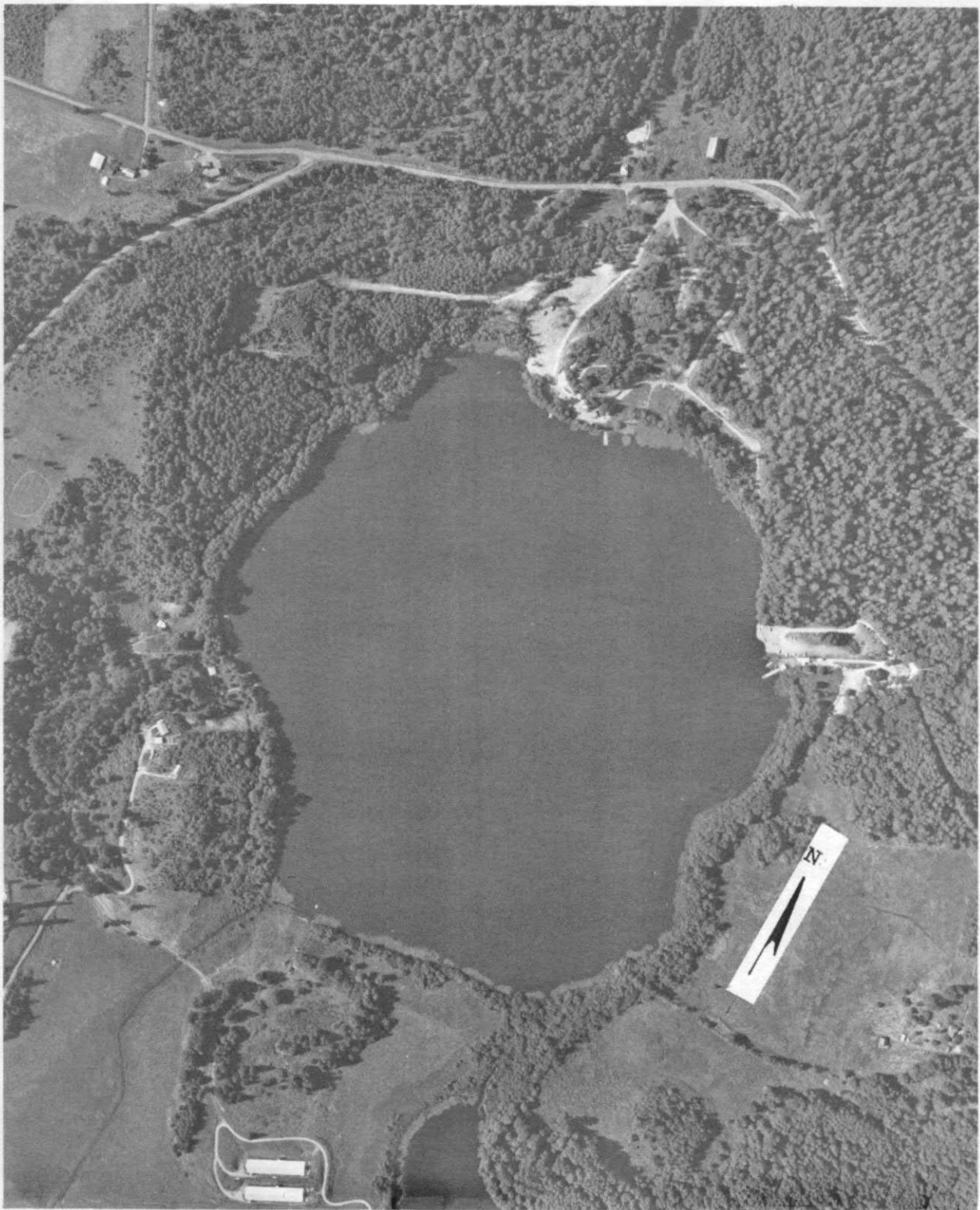
0 1000 FEET

EXPLANATION

—20—

Line of equal  
water depth  
Interval 10 feet

Harts Lake, Pierce County. From Washington  
Department of Game, June 1, 1953.



Harts Lake, Pierce County. July 14, 1971. Approx. scale 1:8200.

## JACKSON LAKE

## PIERCE COUNTY

LATITUDE 47°17'10" LONGITUDE 122°46'19" T21N-R1W-23  
PUGET SOUND BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 0.32 SQ MI  
ALTITUDE 196. FT  
LAKE AREA 17. ACRES  
LAKE VOLUME 260. ACRE-FT  
MEAN DEPTH 15. FT  
MAXIMUM DEPTH 30. FT  
SHORELINE LENGTH 0.67 MI  
SHORELINE CONFIGURATION 1.2  
DEVELOPMENT OF VOLUME 0.51  
BOTTOM SLOPE 3.1 %  
BASIN GEOLOGY SED./META.  
INFLOW NONE VISIBLE  
OUTFLOW CHANNEL ABSENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 50 %  
NUMBER OF NEARSHORE HOMES 27  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 3 %  
AGRICULTURAL 2 %  
FOREST OR UNPRODUCTIVE 87 %  
LAKE SURFACE 8 %  
PUBLIC BOAT ACCESS TO LAKE YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

## SAMPLE SITE

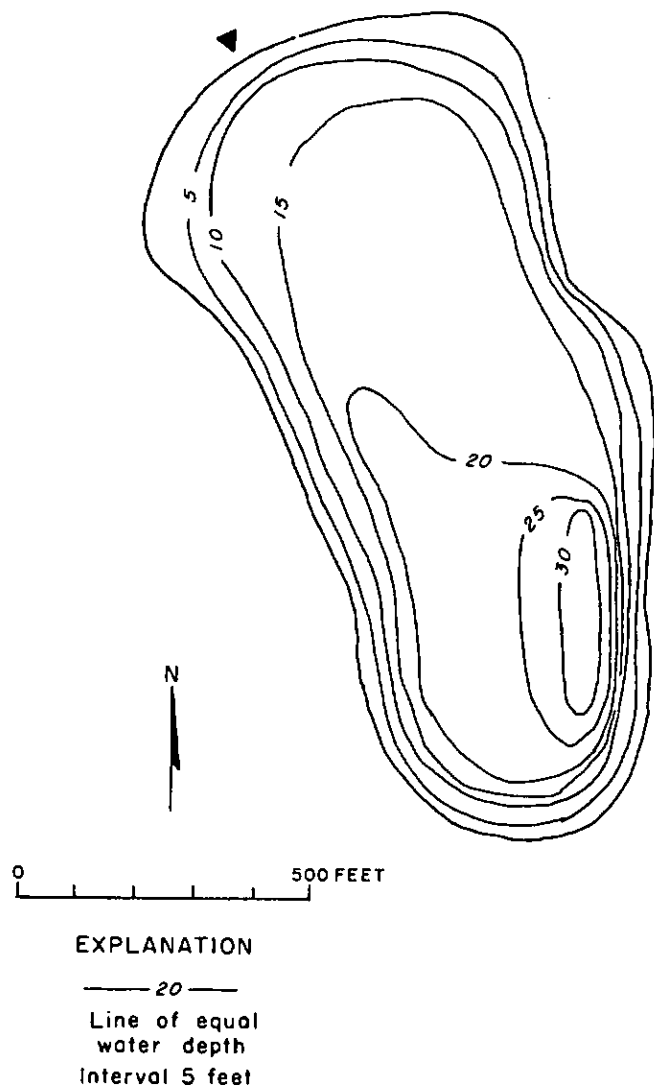
-----  
DATE 10/ 5/70  
TIME 1020 1030  
DEPTH (FT) 4. 23.  
DISSOLVED NITRATE (N) 0.20 0.09  
TOTAL NITRITE (N) 0.00 0.00  
TOTAL AMMONIA (N) 0.55 0.48  
TOTAL ORGANIC NITROGEN (N) -- --  
TOTAL PHOSPHORUS (P) 0.020 0.19  
DISSOLVED ORTHOPHOSPHATE (P) 0.006 0.18  
SPECIFIC CONDUCTANCE (MICROMHOS) 31 36  
WATER TEMPERATURE (DEG C) 14.2 6.9  
COLOR (PLATINUM-COBALT UNITS) 40 60  
SECCHI-DISC VISIBILITY (FT) 5  
DISSOLVED OXYGEN 9.0 0.2

LAKE SHORELINE COVERED BY EMERSED PLANTS 76-100 %  
LAKE SURFACE COVERED BY EMERSED PLANTS 11- 25 %

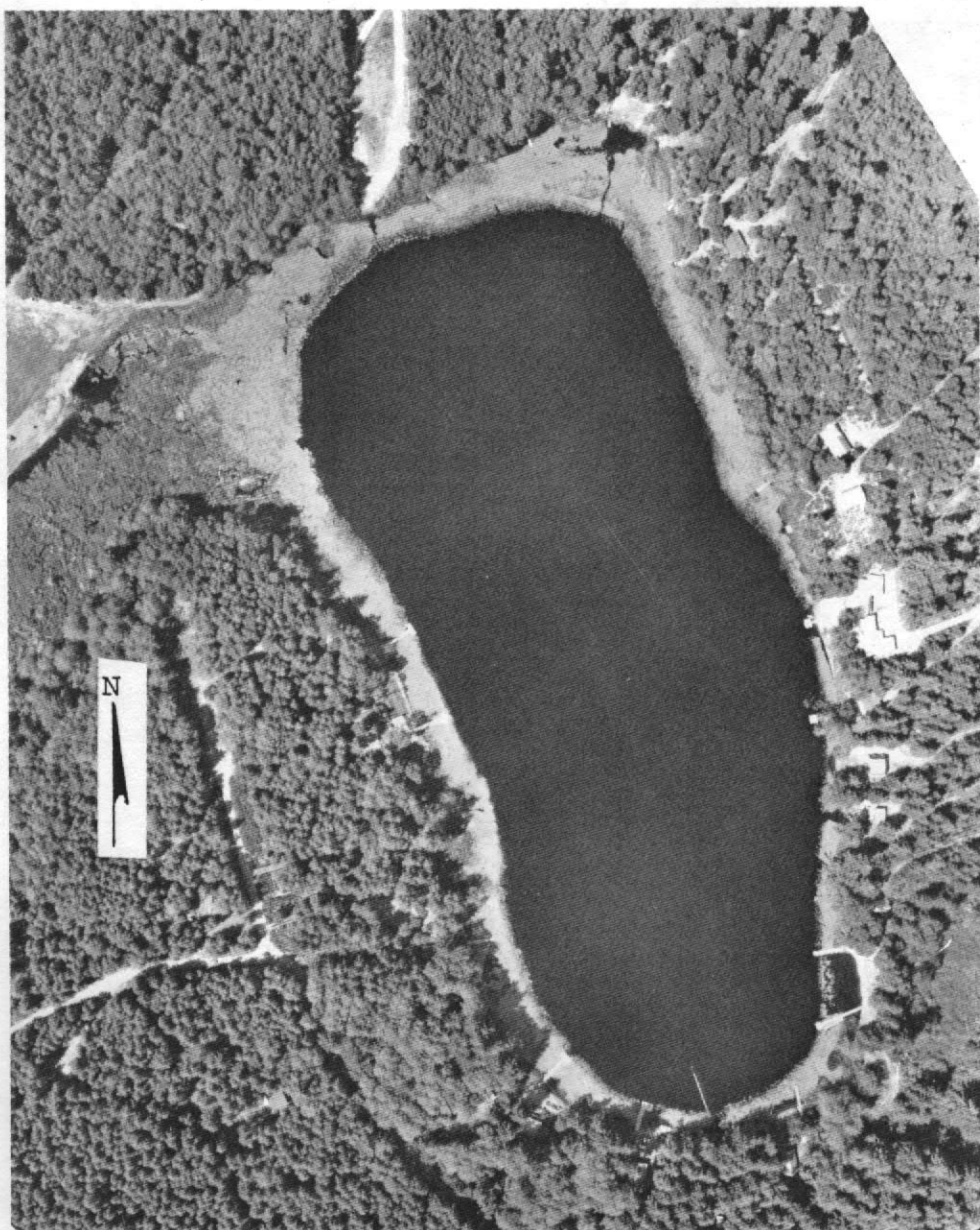
DATE 0/ 0/ 0  
TIME 0  
NUMBER OF FECAL COLIFORM SAMPLES 0  
FECAL COLIFORM, MINIMUM (COL./100ML) --  
FECAL COLIFORM, MAXIMUM (COL./100ML) --  
FECAL COLIFORM, MEAN (COL./100ML) --

## REMARKS

-----  
EMERSED PLANTS COVERED THE SHORELINE IN A WIDE MARGIN AROUND THE LAKE.  
THE LITTORAL ZONE OF THE LAKE IS COMPOSED OF MUCK AND SILT WITH SOME  
SAND. IN 1970 THE U.S. GEOLOGICAL SURVEY SAMPLED THE LAKE THREE TIMES.  
THE PLANT SURVEY WAS MADE ON OCTOBER 5, 1970.



Jackson Lake, Pierce County. From Washington  
Department of Game, August 16, 1954.



Jackson Lake, Pierce County. July 14, 1971. Approx. scale 1:3300.



## JOSEPHINE LAKE

## PIERCE COUNTY

LATITUDE 47° 9'13" LONGITUDE 122°40'41" T19N-R1E-9  
 PUGET SOUND BASIN

## PHYSICAL DATA

## CULTURAL DATA

-----		-----	
DRAINAGE AREA	0.92 SQ MI	RESIDENTIAL DEVELOPMENT	21 %
ALTITUDE	196. FT	NUMBER OF NEARSHORE HOMES	17
LAKE AREA	88. ACRES	LAND USE IN DRAINAGE BASIN	
LAKE VOLUME	1100. ACRE-FT	RESIDENTIAL URBAN	0 %
MEAN DEPTH	12. FT	RESIDENTIAL SUBURBAN	0 %
MAXIMUM DEPTH	23. FT	AGRICULTURAL	0 %
SHORELINE LENGTH	2.2 MI	FOREST OR UNPRODUCTIVE	74 %
SHORELINE CONFIGURATION	1.7	LAKE SURFACE	26 %
DEVELOPMENT OF VOLUME	0.52		
BOTTOM SLOPE	1.0 %		
BASIN GEOLOGY	SED./META.		
INFLOW	INTERMITTENT		
OUTFLOW CHANNEL	PRESENT	PUBLIC BOAT ACCESS TO LAKE	--

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

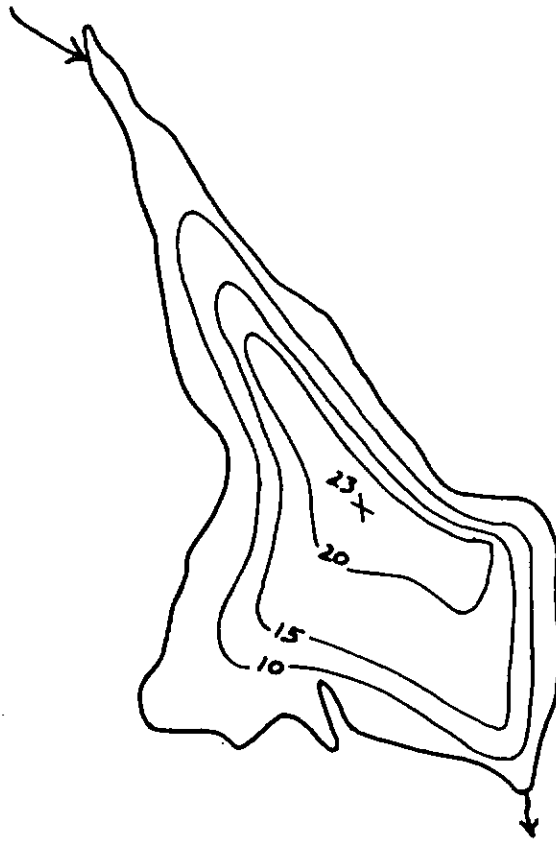
SAMPLE SITE	1
DATE	8/21/74
TIME	1220 1225
DEPTH (FT)	3. 20.
TOTAL NITRATE (N)	0.02 0.01
TOTAL NITRITE (N)	0.00 0.00
TOTAL AMMONIA (N)	0.05 0.04
TOTAL ORGANIC NITROGEN (N)	0.41 0.49
TOTAL PHOSPHORUS (P)	0.009 0.015
TOTAL ORTHOPHOSPHATE (P)	0.002 0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	50 45
WATER TEMPERATURE (DEG C)	20.1 19.9
COLOR (PLATINUM-COBALT UNITS)	5 0
SECCHI-DISC VISIBILITY (FT)	16
DISSOLVED OXYGEN	8.3 6.5

LAKE SHORELINE COVERED BY EMERSED PLANTS	51- 75 %
LAKE SURFACE COVERED BY EMERSED PLANTS	1- 10 %

DATE	8/21/74
TIME	1240
NUMBER OF FECAL COLIFORM SAMPLES	3
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	1
FECAL COLIFORM, MEAN (COL./100ML)	<1

## REMARKS

-----  
 THE LAKE IS FED FROM FLORENCE LAKE. A DENSE COVER OF SUBMERSED PLANTS (WATER MILFOIL) WAS OBSERVED IN THE NARROW NORTH BAY. THE DO WAS NEAR SATURATION THROUGHOUT THE WATER COLUMN, EXCEPT NEAR THE LAKE BOTTOM.



N



0 1000 2000 FEET

EXPLANATION

—15—

Line of equal  
water depth  
Interval 5 feet

Josephine Lake, Pierce County. From Washington  
Department of Conservation, date unknown.



Josephine Lake, Pierce County. May 24, 1970. Approx. scale 1:12,000.

## KAPOWSIN LAKE

## PIERCE COUNTY

LATITUDE 46°57'32" LONGITUDE 122°13'55" T17N-R5E-18  
PUYALLUP RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 24.4 SQ MI  
ALTITUDE 600. FT  
LAKE AREA 590. ACRES  
LAKE VOLUME 8300. ACRE-FT  
MEAN DEPTH 14. FT  
MAXIMUM DEPTH 29. FT  
SHORELINE LENGTH 9.0 MI  
SHORELINE CONFIGURATION 2.6  
DEVELOPMENT OF VOLUME 0.48  
BOTTOM SLOPE 0.51 %  
BASIN GEOLOGY SED./META.  
INFLOW PERENNIAL  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 1 %  
NUMBER OF NEARSHORE HOMES 2  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN <1 %  
RESIDENTIAL SUBURBAN 1 %  
AGRICULTURAL 4 %  
FOREST OR UNPRODUCTIVE 91 %  
LAKE SURFACE 4 %  
PUBLIC BOAT ACCESS TO LAKE YES

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

## SAMPLE SITE

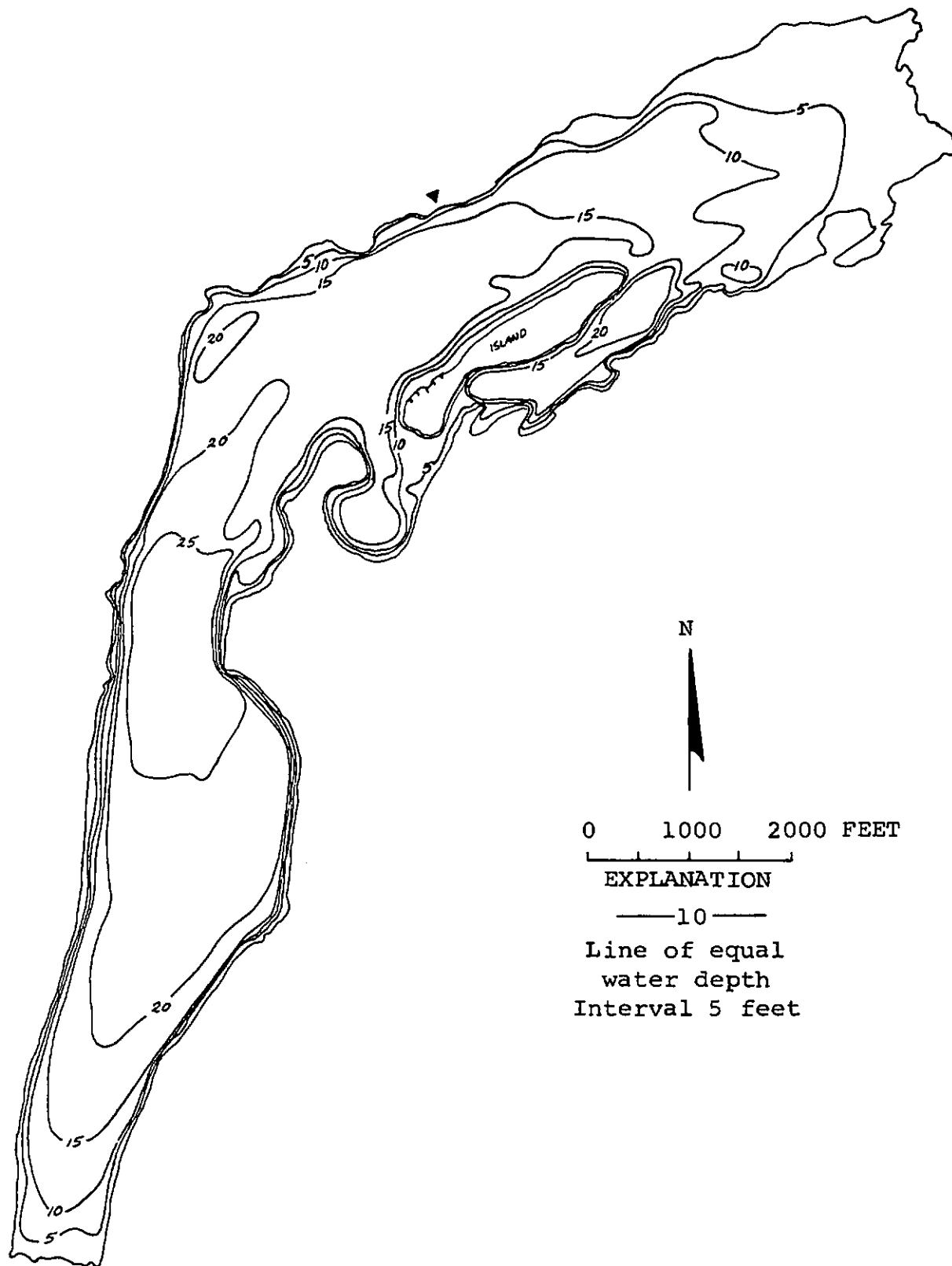
-----  
DATE 8/10/73  
TIME 1240 1245  
DEPTH (FT) 3. 24.  
TOTAL NITRATE (N) 0.01 0.01  
TOTAL NITRITE (N) 0.00 0.00  
TOTAL AMMONIA (N) 0.06 0.57  
TOTAL ORGANIC NITROGEN (N) 0.20 0.08  
TOTAL PHOSPHORUS (P) 0.015 0.26  
TOTAL ORTHOPHOSPHATE (P) 0.011 0.22  
SPECIFIC CONDUCTANCE (MICROMHOS) 56 68  
WATER TEMPERATURE (DEG C) 21.1 11.5  
COLOR (PLATINUM-COBALT UNITS) 15 125  
SECCHI-DISC VISIBILITY (FT) 8  
DISSOLVED OXYGEN 10.4 0.3

LAKE SHORELINE COVERED BY EMERSED PLANTS 1- 10 %  
LAKE SURFACE COVERED BY EMERSED PLANTS 1- 10 %

DATE 8/10/73  
TIME 1255  
NUMBER OF FECAL COLIFORM SAMPLES 4  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) 8  
FECAL COLIFORM, MEAN (COL./100ML) 2

## REMARKS

-----  
THE LAKE FORMED ABOUT 600 YEARS AGO WHEN THE ELECTRON MUDFLOW FROM MT. RAINIER IMPOUNDED OHOP CREEK. THE NORTH END OF THE LAKE IS CHOKED WITH FLOATING LOGS AND SNAGS EXTENDING 1000-1200 FEET FROM SHORE. THE NEXT 1000 FEET INTO THE LAKE WAS COVERED WITH SUBMERSED PLANTS INTERSPERSED WITH STUMPS AND SNAGS. SUBMERSED PLANTS WERE OBSERVED IN THE SHALLOW BAYS. A LOW-DENSITY ALGAL BLOOM WAS OBSERVED AND HYDROGEN SULFIDE WAS DETECTED IN THE HYPOLIMNION.



Kapowsin Lake, Pierce County. From  
U.S. Geological Survey, July 17, 1973.



Kapowsin Lake, Pierce County. May 24, 1970. Approx. scale 1:16,000.



## KREGER LAKE

## PIERCE COUNTY

LATITUDE 46°52' 2" LONGITUDE 122°23'46" T16N-R3E-14  
NISQUALLY RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 4.87 SQ MI  
ALTITUDE 531. FT  
LAKE AREA 42. ACRES  
LAKE VOLUME (EST.) 280. ACRE-FT  
MEAN DEPTH (EST.) 7. FT  
MAXIMUM DEPTH 12. FT  
SHORELINE LENGTH 1.2 MI  
SHORELINE CONFIGURATION 1.3  
DEVELOPMENT OF VOLUME 0.55  
BOTTOM SLOPE 0.79 %  
BASIN GEOLOGY SED./META.  
INFLOW INTERMITTENT  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 0 %  
NUMBER OF NEARSHORE HOMES 0  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 1 %  
AGRICULTURAL 38 %  
FOREST OR UNPRODUCTIVE 55 %  
LAKE SURFACE 6 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

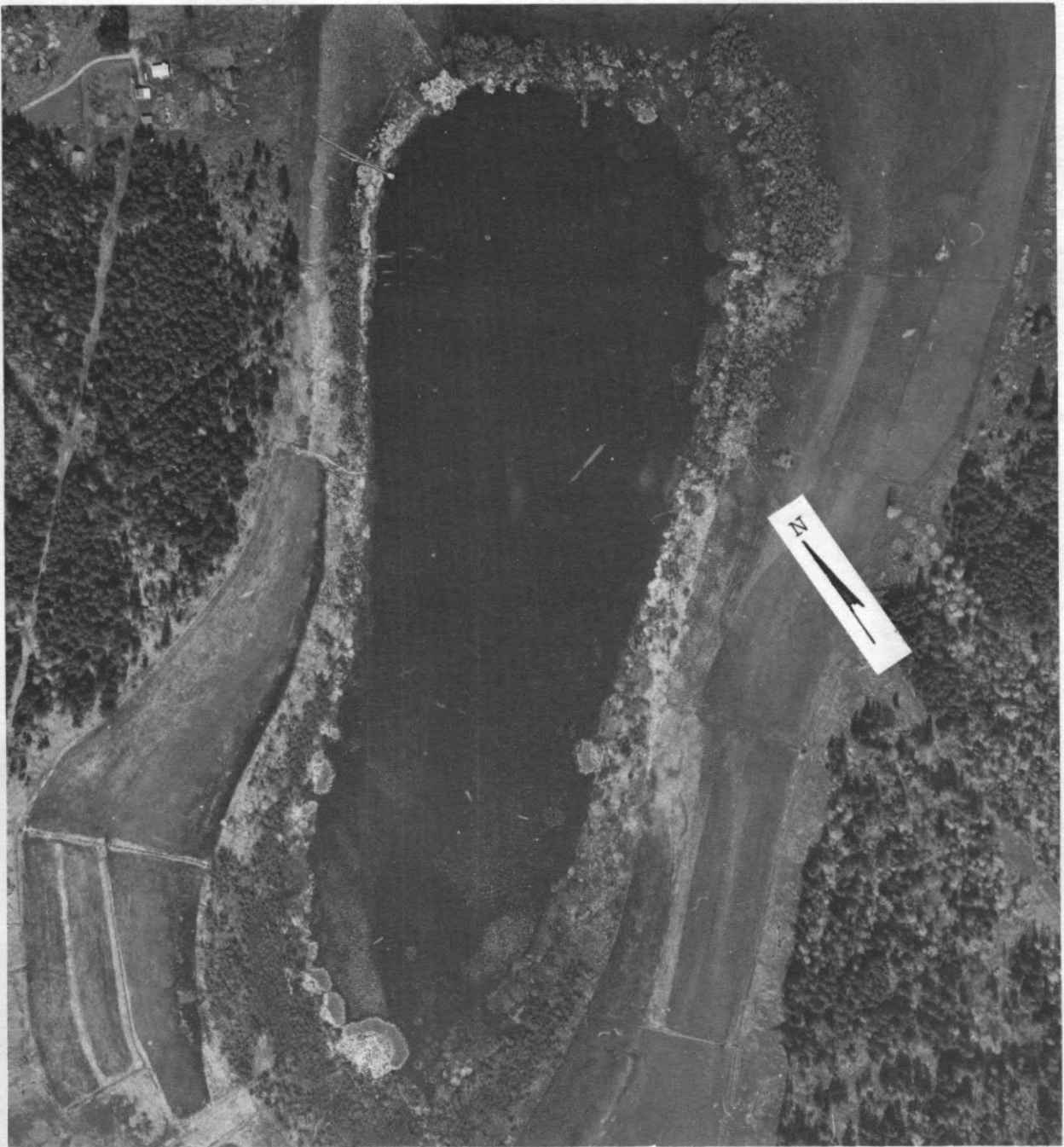
-----  
SAMPLE SITE 1  
DATE 8/11/73  
TIME 1640 1645  
DEPTH (FT) 2. 3.  
TOTAL NITRATE (N) 0.01 --  
TOTAL NITRITE (N) 0.01 --  
TOTAL AMMONIA (N) 0.50 --  
TOTAL ORGANIC NITROGEN (N) 1.8 --  
TOTAL PHOSPHORUS (P) 0.45 --  
TOTAL ORTHOPHOSPHATE (P) 0.22 --  
SPECIFIC CONDUCTANCE (MICROMHOS) 134 --  
WATER TEMPERATURE (DEG C) 22.5 22.0  
COLOR (PLATINUM-COHALT UNITS) 55 --  
SECCHI-DISC VISIBILITY (FT) 2  
DISSOLVED OXYGEN 10.2 9.6

LAKE SHORELINE COVERED BY EMERSED PLANTS 76-100 %  
LAKE SURFACE COVERED BY EMERSED PLANTS 11- 25 %

DATE 8/11/73  
TIME 1645  
NUMBER OF FECAL COLIFORM SAMPLES 2  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) 17  
FECAL COLIFORM, MEAN (COL./100ML) 8

## REMARKS

-----  
THE LAKE IS FED BY SILVER LAKE. EMERSED PLANTS COVERED THE SHORELINE AND SUBMERSED PLANTS COVERED THE NEARSHORE LAKE BOTTOM. THE LITTORAL BOTTOM IS MUCK AND THE WATER IS A BROWN COLOR. AN ALGAL BLOOM WAS OBSERVED. THE LAKE VOLUME IS ESTIMATED.



Kreger Lake, Pierce County. April 3, 1973. Approx. scale 1:4800.

## LAGRANDE LAKE

## PIERCE COUNTY

LATITUDE 46°49'23" LONGITUDE 122°18'13" T16N-R4E-33  
NISQUALLY RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 289. SQ MI  
ALTITUDE 935. FT  
LAKE AREA 55. ACRES  
LAKE VOLUME 2700. ACRE-FT  
MEAN DEPTH 49. FT  
MAXIMUM DEPTH 150. FT  
SHORELINE LENGTH 3.4 MI  
SHORELINE CONFIGURATION 3.2  
DEVELOPMENT OF VOLUME 0.32  
BOTTOM SLOPE 8.7 %  
BASIN GEOLOGY SED./META.  
INFLOW PERENNIAL  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 0 %  
NUMBER OF NEARSHORE HOMES 0  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN <1 %  
RESIDENTIAL SUBURBAN <1 %  
AGRICULTURAL 1 %  
FOREST OR UNPRODUCTIVE 97 %  
LAKE SURFACE 2 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

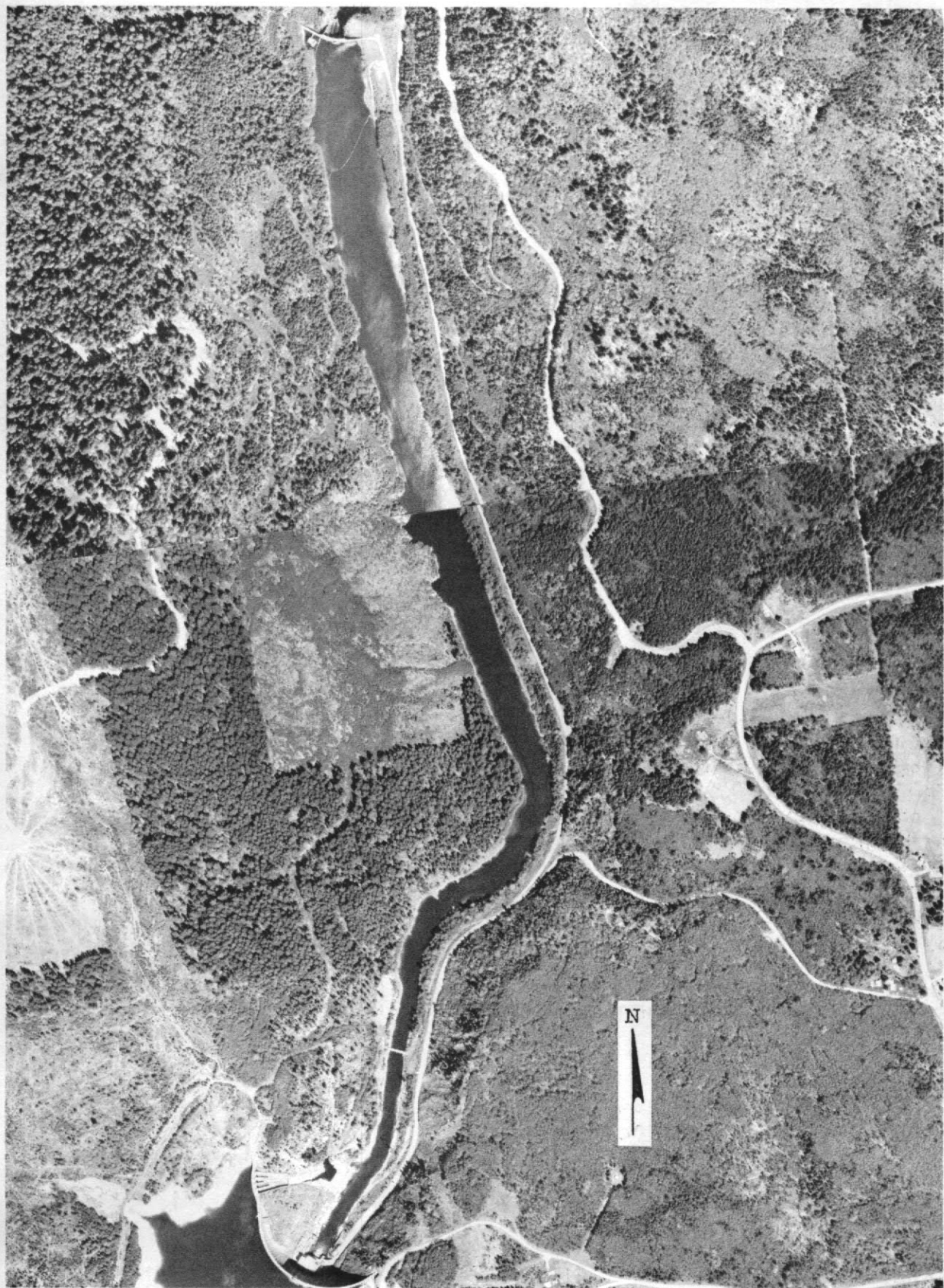
-----  
SAMPLE SITE 1  
DATE 8/22/74  
TIME 1340 1345  
DEPTH (FT) 3. 128.  
TOTAL NITRATE (N) 0.01 0.01  
TOTAL NITRITE (N) 0.01 0.01  
TOTAL AMMONIA (N) 0.16 0.11  
TOTAL ORGANIC NITROGEN (N) 0.16 0.07  
TOTAL PHOSPHORUS (P) 0.026 0.015  
TOTAL ORTHOPHOSPHATE (P) 0.021 0.011  
SPECIFIC CONDUCTANCE (MICROMHOS) 40 46  
WATER TEMPERATURE (DEG C) 12.3 9.8  
COLOR (PLATINUM-COBALT UNITS) 5 5  
SECCHI-DISC VISIBILITY (FT) 2  
DISSOLVED OXYGEN 10.0 7.7

LAKE SHORELINE COVERED BY EMERSED PLANTS LITTLE OR NONE  
LAKE SURFACE COVERED BY EMERSED PLANTS NONE OR <1 %

DATE 8/22/74  
TIME 1350  
NUMBER OF FECAL COLIFORM SAMPLES 3  
FECAL COLIFORM, MINIMUM (COL./100ML) <1  
FECAL COLIFORM, MAXIMUM (COL./100ML) <1  
FECAL COLIFORM, MEAN (COL./100ML) <1

## REMARKS

-----  
A HYDROPOWER RESERVOIR LOCATED BELOW ALDER DAM ON THE NISQUALLY RIVER. THE LAKE IS IN A LONG AND NARROW CANYON. GLACIAL MELTWATER FROM THE NISQUALLY GLACIER ON MT RAINIER GAVE THE WATER A MURKY APPEARANCE. THE DO WAS NEAR SATURATION THROUGHOUT THE WATER COLUMN. SUBMERGED STUMPS WERE OBSERVED LOCALLY ALONG THE SHORELINE. THE U.S. GEOLOGICAL SURVEY HAS MAINTAINED A WATER-STAGE RECORDER ON THE LAKE SINCE 1945.



La Grande Lake, Pierce County. May 16, 1970. Approx. scale 1:12,000.

## LILY LAKE

## PIERCE COUNTY

LATITUDE 47° 2'35" LONGITUDE 121°48'46" T18N-R8E-17  
 PUYALLUP RIVER BASIN

## PHYSICAL DATA

-----

DRAINAGE AREA	0.17 SQ MI
ALTITUDE	4060. FT
LAKE AREA	9. ACRES
LAKE VOLUME	300. ACRE-FT
MEAN DEPTH	35. FT
MAXIMUM DEPTH	78. FT
SHORELINE LENGTH	0.57 MI
SHORELINE CONFIGURATION	1.4
DEVELOPMENT OF VOLUME	0.45
BOTTOM SLOPE	11. %
BASIN GEOLOGY	IGNEOUS
INFLOW	INTERMITTENT
OUTFLOW CHANNEL	PRESENT

## CULTURAL DATA

-----

RESIDENTIAL DEVELOPMENT	0 %
NUMBER OF NEARSHORE HOMES	0
LAND USE IN DRAINAGE BASIN	
RESIDENTIAL URBAN	0 %
RESIDENTIAL SUBURBAN	0 %
AGRICULTURAL	0 %
FOREST OR UNPRODUCTIVE	92 %
LAKE SURFACE	8 %
PUBLIC BOAT ACCESS TO LAKE	--

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

-----

SAMPLE SITE	1
DATE	7/17/73
TIME	1300 1310
DEPTH (FT)	3. 49.
TOTAL NITRATE (N)	0.03 0.01
TOTAL NITRITE (N)	0.00 0.00
TOTAL AMMONIA (N)	0.03 0.15
TOTAL ORGANIC NITROGEN (N)	0.04 0.06
TOTAL PHOSPHORUS (P)	0.007 0.009
TOTAL ORTHOPHOSPHATE (P)	0.001 0.002
SPECIFIC CONDUCTANCE (MICROMHOS)	21 45
WATER TEMPERATURE (DEG C)	16.8 4.0
COLOR (PLATINUM-COBALT UNITS)	0 20
SECCHI-DISC VISIRILITY (FT)	30
DISSOLVED OXYGEN	8.2 0.4

LAKE SHORELINE COVERED BY EMERSED PLANTS  
 LAKE SURFACE COVERED BY EMERSED PLANTS

LITTLE OR NONE  
 NONE OR <1 %

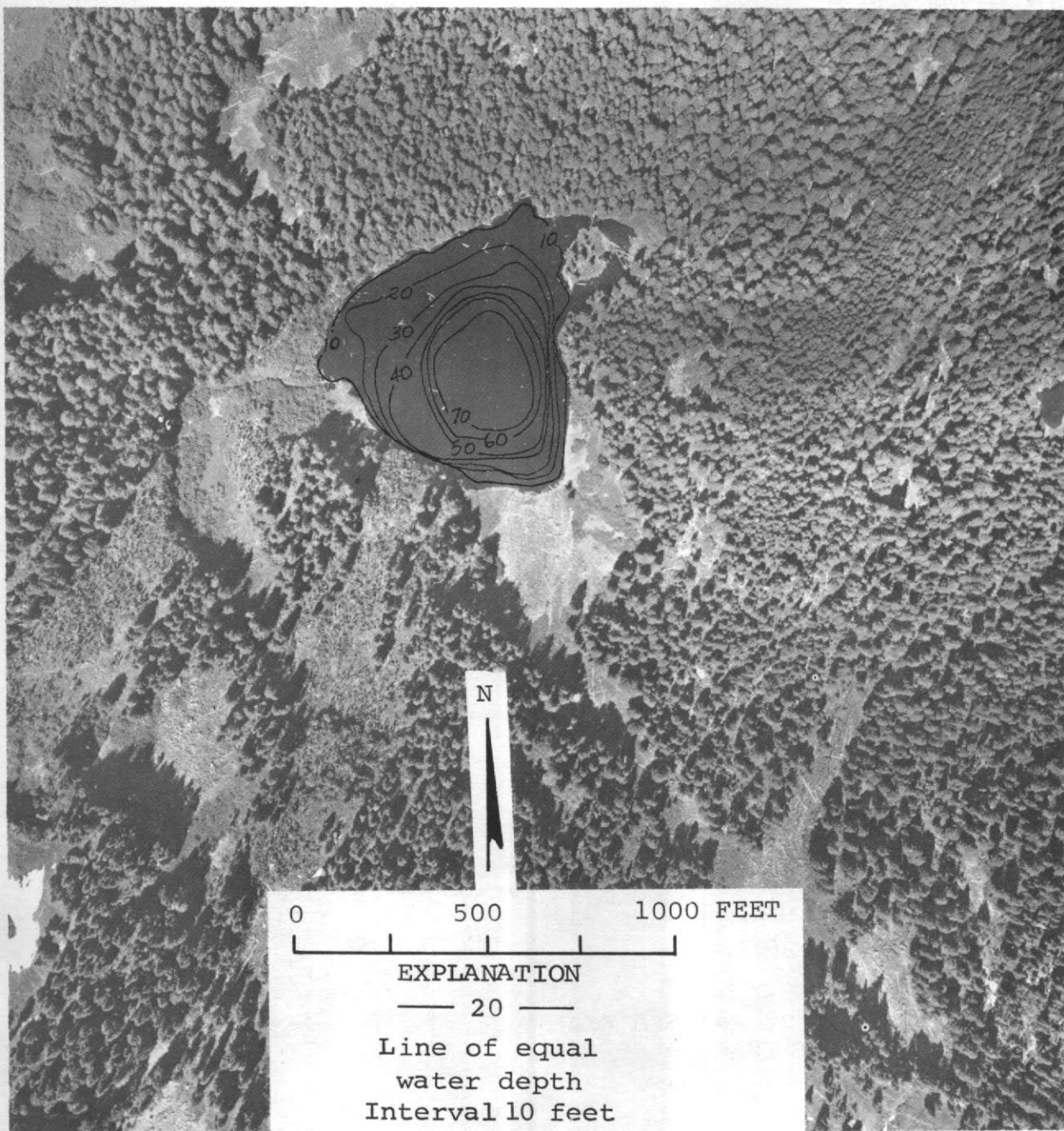
DATE	7/17/73
TIME	1310
NUMBER OF FECAL COLIFORM SAMPLES	2
FECAL COLIFORM, MINIMUM (COL./100ML)	<1
FECAL COLIFORM, MAXIMUM (COL./100ML)	<1
FECAL COLIFORM, MEAN (COL./100ML)	<1

## REMARKS

-----

NO EMERSED OR SUBMERSED AQUATIC PLANTS WERE OBSERVED. FLOATING AND  
 SUBMERSED LOGS COVERED THE SHORELINE.





Lily Lake, Pierce County. Bathymetric map from  
U.S. Geological Survey, September 2, 1973.  
Aerial photo, July 14, 1973.



LATITUDE 46°53'18" LONGITUDE 122°28' 6" T16N-R3E-7  
NISQUALLY RIVER BASIN

## PHYSICAL DATA

-----  
DRAINAGE AREA 0.90 SQ MI  
ALTITUDE 349. FT  
LAKE AREA 12. ACRES  
LAKE VOLUME 80. ACRE-FT  
MEAN DEPTH 7. FT  
MAXIMUM DEPTH 12. FT  
SHORELINE LENGTH 0.55 MI  
SHORELINE CONFIGURATION 1.1  
DEVELOPMENT OF VOLUME 0.55  
BOTTOM SLOPE 1.5 %  
BASIN GEOLOGY SED./META.  
INFLOW INTERMITTENT  
OUTFLOW CHANNEL PRESENT

## CULTURAL DATA

-----  
RESIDENTIAL DEVELOPMENT 0 %  
NUMBER OF NEARSHORE HOMES 0  
LAND USE IN DRAINAGE BASIN  
RESIDENTIAL URBAN 0 %  
RESIDENTIAL SUBURBAN 0 %  
AGRICULTURAL 12 %  
FOREST OR UNPRODUCTIVE 86 %  
LAKE SURFACE 2 %  
PUBLIC BOAT ACCESS TO LAKE --

## WATER-QUALITY DATA (IN MG/L UNLESS OTHERWISE INDICATED)

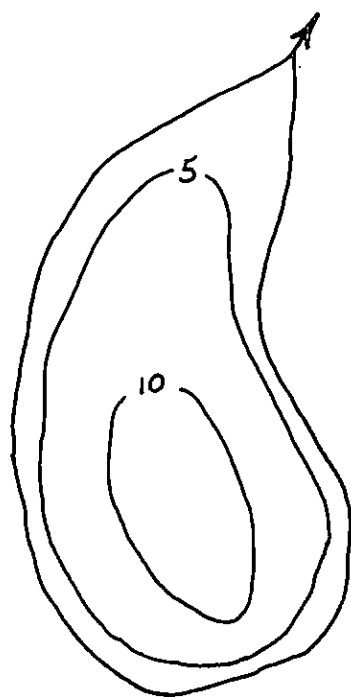
-----  
SAMPLE SITE 1  
DATE 8/11/73  
TIME 1600 1610  
DEPTH (FT) 3. 6.  
TOTAL NITRATE (N) 0.02 --  
TOTAL NITRITE (N) 0.01 --  
TOTAL AMMONIA (N) 0.36 --  
TOTAL ORGANIC NITROGEN (N) 0.94 --  
TOTAL PHOSPHORUS (P) 0.21 --  
TOTAL ORTHOPHOSPHATE (P) 0.092 --  
SPECIFIC CONDUCTANCE (MICROMHOS) 194 --  
WATER TEMPERATURE (DEG C) 20.3 17.8  
COLOR (PLATINUM-COBALT UNITS) 30 --  
SECCHI-DISC VISIBILITY (FT) > 8  
DISSOLVED OXYGEN 9.7 1.2

LAKE SHORELINE COVERED BY EMERSED PLANTS 76-100 %  
LAKE SURFACE COVERED BY EMERSED PLANTS 11- 25 %

DATE 8/11/73  
TIME 1610  
NUMBER OF FECAL COLIFORM SAMPLES 2  
FECAL COLIFORM, MINIMUM (COL./100ML) 3  
FECAL COLIFORM, MAXIMUM (COL./100ML) 12  
FECAL COLIFORM, MEAN (COL./100ML) 7

## REMARKS

-----  
THE LAKE DRAINS TO HART LAKE. THE LAKE HAD A HEAVY COVER OF EMERSED AND SUBMERSED AQUATIC PLANTS. THE LITTORAL BOTTOM IS SOFT MUCK. AN ALGAL BLOOM WAS OBSERVED.



N



0 1000 2000 FEET

EXPLANATION

—10—

Line of equal  
water depth  
Interval 5 feet

Little (Little Hart) Lake, Pierce County.  
From Washington Department of Game, June 1, 1953.



Little (Little Hart) Lake, Pierce County. April 27, 1973. Approx. scale 1:4800.